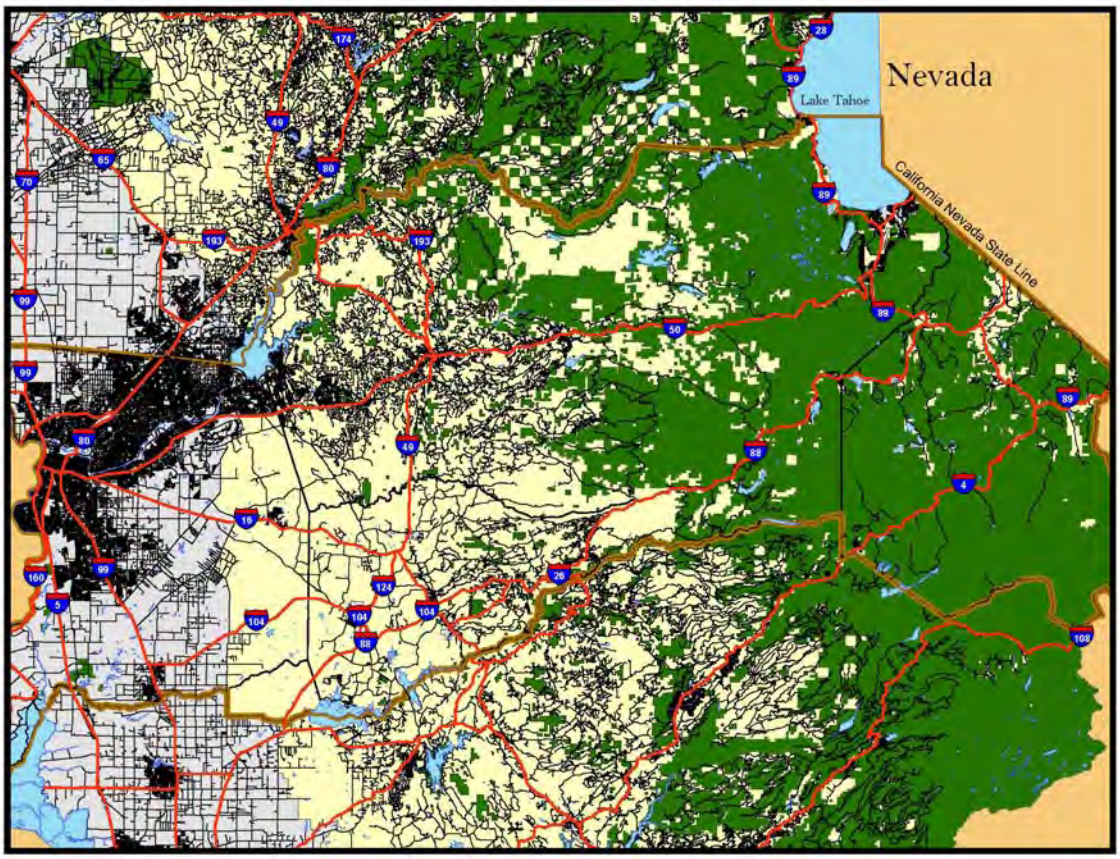
Unit Strategic Fire Plan
Amador-El Dorado-Sacramento-Alpine Unit



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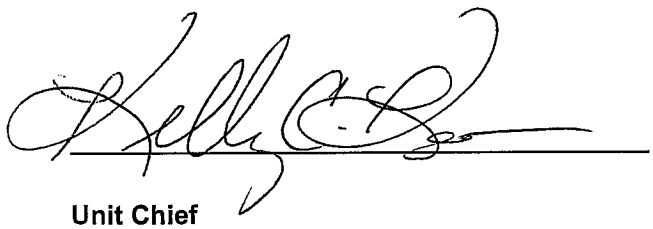
SIGNATURES

Unit Strategic Fire Plan developed for Amador-El Dorado-Sacramento-Alpine Unit

This Plan:

- Was collaboratively developed. Interested parties, Federal, State, City, and County agencies within the Unit have been consulted and are listed in the plan.
- Identifies and prioritizes pre fire and post fire management strategies and tactics meant to reduce the loss of values at risk within the Unit.
- Is intended for use as a planning and assessment tool only. It is the responsibility of those implementing the projects to ensure that all environmental compliance and permitting processes are met as necessary.



6/7/2011

Unit Chief **Date**

Kelly Keenan

6/7/2011

Pre-Fire Engineer **Date**

Douglas Michael Ferro

EXECUTIVE SUMMARY

The goal of any administrative unit of CAL FIRE is to reduce the loss of life, property, watershed values, and other assets at risk from wildfire through a focused pre-fire management program and increased initial attack success.

The above statement is fairly clear however the roadmap to accomplishing those ends isn't always crystal clear. Every administrative unit and associated communities have differing concerns as it relates to project implementation and priorities as it relates to wild land fire. The purpose of this Pre-Fire Management Plan is to provide adequate direction to departmental staff and communities within the administrative unit to better direct resources and personnel commitments to the implementation of this plan.

The Alpine-Amador-El Dorado-Sacramento Unit Pre-Fire Management Plan has been prepared with the following objectives in priority order.

1. Support project work and planning efforts that encourage the development of safe ingress and egress routes for emergency incidents.

2. Continue to support the implementation of fire safe clearance around structures.

3. Support implementation of the new 2008 WUI Building standards through cooperation with local government planning departments.

4. Continue to provide operational training that will support safe and successful suppression operations.

5. Utilize CAL FIRE and community resources to mitigate large and damaging wildfires with defensible fuel zone/fuels reduction projects at critical operational locations.

6. Utilize prevention operations to reduce ignitions within the Unit.

7. Conduct incident analysis to evaluate Unit success in achieving the 95% threshold of keeping fires less than 10 acres in size.

8. Educate the community on their role in the wildlands and support Fire Safe Council activities.

9. Nurture and build relationships with local public and private industries to develop cooperative project plans.

10. Continually reassess local mitigation projects and update this Fire Plan.

This Pre-Fire Management plan has been developed utilizing the above objectives during the evaluation process for this plan.

SECTION I: UNIT OVERVIEW

A: UNIT DESCRIPTION

The Unit has a unique wildland fire environment owing to its Mediterranean climate, highly combustible fuels, frequent wildland-urban interface zones, and the complexity of its terrain. Fires burn with greater intensity in this environment and are more costly and difficult to control, creating a greater risk of loss of life, property, and resources.

The Unit's Direct Protection Area (DPA[1]) on the west slope of the Central Sierra Nevada Mountain Range is experiencing explosive population growth. Most of this growth is occurring outside of the incorporated cities - the same areas that contain the most hazardous fuels and most difficult terrain. Most of the man-made values at risk from wildfire are also located in these areas.

The fire environment in the Unit is conducive to large destructive wildfires as shown by the fire history map. The majority of CAL-FIRE's DPA contains high to very high hazard fuels (brush and timber). These areas contain steep, rugged river canyons making access difficult, and . Fighting fires with bulldozers is difficult, if not impossible in some locations.

Key Issues:

- Increasing life, property, natural resources, and ecological losses.
- Inadequate community ingress/egress routes.
- Difficulty of fire suppression, increasing safety problems for firefighters.
- Longer periods between recurring fires in many vegetation types increasing volumes of fuel per acre.
- Increasing fire intensities.
- Increasing taxpayer costs and asset losses.
- More people are living and recreating in wildland intermix areas, which adds to the increases in ignition sources, resulting in more fires.
- The loss of funding for the two lookouts has significantly decreased the early detection ability of fires in AEU.

[1] DPA are lands that CAL FIRE has contractually agreed to protect. These are usually federal lands where the federal government is fiscally and legally the protection agency but CAL FIRE resources are better positioned to provide protection. Federal agencies provide direct protection to SRA lands where the situation is reversed.

Fire History

The Unit's fire history is one of numerous small fires with large fires occurring every thirty to forty years. The last large fire was the Rancheria Creek Fire in 1961(34,104 ac.) However, over the past twenty years population growth and development in the wildland have placed many additional homes and businesses at risk - now small fires often create wildland-urban interface fire protection problems previously only found in the most densely populated areas of southern California. On these maps the fires shown prior to the 2002 fire season are 300 acres and larger. In 2008, CAL FIRE updated its fire mapping requirements to include mapping grass fires 300 acres and over, brush fires 50 acres and over, and timber fires 10 acres and over, and wildland fires destroying three or more residential dwellings or commercial buildings.

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Most large fires are aligned east to west. This is particularly evident in Amador County. This orientation is due to two factors, prevailing winds and terrain. El Dorado and Sacramento Counties are more likely to experience fires which run from the north to the south - especially at the lower elevations. However, the historical large fires in El Dorado County follow the same east to west orientation as those in Amador County.

Fire Weather &Terrain

The Wildland Fire Triangle consists of fuels, weather, and topography. The most variable component is weather and the most stable of the three is topography. These components of the fire environment can't be altered by humans to affect the potential outcome of wildland fire occurrence, however the contribution to fire behavior by both require significant analy sis to meet the objective of mitigating wildland fire activity on State Responsibility Lands.

Fire Weather

Fire weather for A EU is typ ically dominated by three general weather phenomenon; the delta push influence, north wind even ts, and east foehn winds caused by high pres sure development in the Great Basin. All three weather conditions cause considerable increases in fire intensity and size, howev er the delta influence is the most common and surfaces frequently throughout summer.

Typically, high pressure systems will dom inate Northern California in the summer months bringing extremely hot and dry condi tions over much of the region. As these systems develop they wil l tend to yield near th e Delta and Sacramento

areas bringing the marine influence to the Unit. This is generally considered a good thing for fire behavior; slightly cooler afternoon temperatures and increases in relative humidity. The downside however is the strong winds that accompany these patterns. These winds are generally capable of overriding any benefit that may come from marine air. There is, however, an upside. This type of wind will typically subside after sundown causing fire behavior to drop off dramatically.

The other critical wind patterns for AEU are very difficult to predict, are relatively rare, and often times are forecasted only the day before. Northerly or easterly winds are typically warmer and drier than most other wind patterns due to air compression. These conditions provide the perfect environment for increased fire intensity and large fire growth. Fire growth is typically wind driven, however as these events recede, fire immediately returns to fuel/topography driven in opposing directions to the wind driven direction. This type of wind event is commonly referred to as a Santa Ana Wind in Southern California, however it can manifest itself anywhere in California.

Topography

Topography in AEU is much like most other Sierra Units; flat near the valley bottom and increasingly steep as the Unit reaches higher elevations. More importantly is the relationship of vegetation change with that of topography. Fuel loads tend to increase significantly as the topography becomes more rugged. The area near the Central Valley and Delta region, which is characterized by rolling hills and flat valley bottoms, is generally dominated by grass lands or savannah. The fire behavior is generally wind driven short duration fires, typically lasting no more than one burning period. (Typically between 10:00 A.M. to sundown.)

As the terrain approaches the upper foothills the vegetation changes dramatically to brush and tree dominated fuel types. These areas are generally steeper and longer sloped which will tend to cause more fuel and topography dominated fire behavior. Heavier fuels over steeper slopes cause marked increases in fire intensity and fire size; this combination makes fire fighting efforts increasingly more difficult. This is primarily due to the demands that heavier fuels on steeper terrain can have on resources during active suppression and mop up operations.

Higher elevation areas of the Unit are typically steeper than that of the upper foothill region. Fuels are generally Sierra Mixed Conifer which is made up of heavy timber and significant loads of accumulated dead fuels. Fire spread is typically fuel and slope driven but winds can cause long range spotting.

A major topographic feature that can lead to increased fire spread and intensity is the canyon alignment of the major river systems within the Unit. All of the major river systems are generally aligned in an east/west direction which coincides with the general prevailing westerly wind patterns over the Unit. This alignment can have the effect of "channeling" which can increase the wind speed and turbulence along these river systems. This alignment can often cause fire to spread farther and with greater intensity.

The Amador-El Dorado Unit has completed a Fire Weather Operating Plan which is used to drive much of the day to day fire business decision making in the Unit. That plan is attached as an appendix and goes into much greater detail with respect to weather and topography.

Geographic/Ownership

AEU is located in the Northern Central Sierra. It includes Amador, El Dorado, Alpine and portions of Sacramento and San Joaquin counties. AEU encompasses 2,667,841 acres. AEU's DPA serves **898,861**acres. The United States Forest Service (USFS), Bureau of Indian Affairs, Bureau of Land Management, and Bureau of Reclamation manage lands that are protected by AEU. Conversely, in addition to national forest lands, the Forest Service provides direct wildland fire protection to private lands within the Eldorado and Toiyabe National Forest. Even with the USFS providing that protection the Unit is still actively engaged in pre-fire projects outside of its DPA.

Within AEU there are two all season trans-Sierra highways, State Highway 50 in El Dorado County and State Highway 88 in Amador County. Bisecting the Unit north to south is historic State Highway 49, on the west side of the Sierra and State Highway 89 in the Lake Tahoe Basin on the east side of the Sierra. Most population growth has historically occurred along the two east-west highways. With the influx of high-tech industry in Sacramento County, growth is occurring north and south from the major population centers creating new areas of wildland-urban interface.

AEU contains all or part of three major watersheds, the Middle and South Forks of the American, the North Fork of the Mokelumne, and the Cosumnes River basin. Numerous water agencies and power companies utilize the resources of these rivers and their tributaries for generation of hydroelectric power, acquisition of drinking and irrigation water.

Socioeconomic

The approximate resident population in AEU's DPA is 320,053. El Dorado County's highest population densities are found along the Highway 50 corridor from El Dorado Hills to Pollock Pines. The areas of Pleasant Valley and along State Highway 49 south of the community of El Dorado are also experiencing a rapid population growth. In Amador County, the population densities are greatest along the State Highway 88 corridor from the City of Jackson to the Pioneer area.

County	***Population***[2]
Alpine	1,175
Amador	38,091
El Dorado	181,058
Sacramento	1,418,788
San Joaquin	685,306
Unit Total	2,324,418

A significant seasonal population increase occurs in mid-spring and continues to gradually increase due to the influx of seasonal workers seeking employment during the apple and grape harvests in the late fall.

The easy access to the Lake Tahoe Basin, recreational areas, summer homes, and tourist attractions are also major factors that influence the population during fire season. Even though most of these areas are located within the Eldorado National Forest, visitors must transit through CAL FIRE's DPA to reach them. Since the majority of the fires are human caused, this increase in population usually results in more wildland fire ignitions.

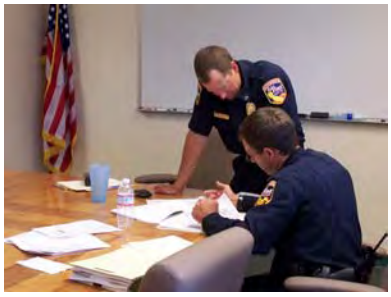
The major industries that support the local economy includes timber, tourism, recreation, wine and fruit production, construction, service oriented businesses and to a lesser extent, light industry. All of these industries have at one time or another been affected by wildfires. Hundreds of thousands of dollars have been lost both directly and indirectly due to wildfires. It has been estimated that a closure of Highway 50 during the summer months would result in a loss of between 1.5 and 2 million dollars a day in the South Lake Tahoe Basin (including Nevada interests). Additionally, an estimated $150,000 would be lost to the west slope communities due to a closure of Highway 50 from the west county line to Echo summit.

[2] 2010 Census Data

AEU Action Plan

The Unit's Fire Management Plan was developed to address fire safe planning and hazardous fuel reduction concerns of state, federal, local fire agencies, as well as fire safe councils and other collaborators. The Fire Plan incorporates an across the board approach to reducing the occurrence and impact of wildland fires on communities and local resources. A coordinated effort involving, Engine Companies, Law Enforcement, and local Fire Safe Councils educate the public and enforce PRC-4291 defensible space requirements. In addition the public is educated and given the opportunity for input on community fire safety, evacuation planning and hazardous fuel reduction. These efforts have an emphasis upon the wildland-urban interface and in particular the homeowner and creating defensible space.

Shaded fuel breaks are also a large component of the overall fuel reduction effort with the Unit focusing on those fuel breaks that support the safe ingress of fire suppression forces and egress of the civilians in the surrounding communities.



The Unit considers collaborator support extremely important. Lack of collaborators may eliminate otherwise important projects from consideration. To gain community support, the Unit works closely with the Fire Safe Councils, local governments, and Federal agencies. Fire Safe Councils provide a forum for creating support for all kinds of projects. This resource has proven so effective that the Unit now accomplishes projects it could not accomplish in the past.

The Fire Safe Councils also closely link their projects with projects in the Unit's Fire Plan. This allows greater progress towards the ultimate goal of reducing damage from wildfire.

The key to effective fire planning is the Cal Fire Battalion Chiefs acting as community wildfire leaders. Consequently, as community wildland leaders, the Battalion Chiefs can only achieve the Unit and Department goals with support from the community they serve.

Amador-El Dorado Unit Fire Plan Assessments

The fire plan process involves analyzing of:

- Assets at Risk (AAR)
- Ignition Workload Assessment (Level of Service)
- Fuels
- Frequency of Severe Fire Weather

Computer based Geographic Information Systems (GIS) is used to assess and rank fire hazard and risk. GIS provides a systematic approach for determining the level of wildland fire protection service and identifying high risk, and high value areas. These are the areas with the greatest potential for large and costly wildfires. Ranking areas in terms of hazard levels allows fire managers and collaborators to focus on the most critical areas, evaluate alternatives and recommend solutions to reduce costs and losses.

The assets at risk are evaluated to the 450-acre scale within the Unit. This scale has been designated by the Department for purposes of manageability. This is based on the sectioning of a USGS 7.5 minute quadrangle map down into a grid resulting in grids of 450 acres per cell. The 450-acre cells have been designated as Quad 81st (Q81) fire plan assessments have been made at the Q81 level. For instance, each Q81st in Unit has a ranking applied to it for Assets at Risk (AAR), Level of Service (LOS), and Fuel Hazard Ranking.

In addition, the unit is using a fifth component:

- Residential Density (parcel based)

The GIS assessment tool only provides one side of the equation. Using each Battalion Chief's intimate knowledge of their area insures project development and implementation is directed at the most critical areas.

Residential Density

This data is a parcel map representing improved residential parcels. It helps planners focus on those areas where the combination of fuels, weather, and improved parcels pose the greatest potential for large damaging fires. It also provides planners and fire managers with an up-to-date view of residential density. This data is especially useful in the PRC 4291 program. Utilizing parcel maps in target areas helps the field personnel quickly and accurately complete their inspections.

Ignition Workload Assessment (Level of Service)

The Fire Plan Ignition Workload Analysis assessment (LOS) is designed to measure the Unit's success at controlling fires before they become large and costly. The underlying assumption is that fires successfully contained in the initial attack stage are not problem fires. Problem fires are the few that exceed suppression organization capabilities and cause damage or are costly to control.

CAL-FIRE uses GIS to overlay a history of wildfires onto a vegetation type map and derives the average annual number of fires by size, severity of burning and assets lost. This data allows a level of service success and failure rate

calculation. The number of successful initial attacks divided by the number of initial attacks will equal the level of service for the time period analyzed. This rating is expressed as a percentage of fires that are successfully extinguished during initial attack.

Success is defined as those fires that are controlled before unacceptable damage and cost are incurred.

Failures are defined as the following:

Woodland	Fires = 15 acres and above
Grass	Fires = 12 acres and above
Brush	Fires = 6 acres and above
Interior (Timber)	Fires = 3 acres and above

FUELS

Vegetation within the Unit varies widely and includes grassland, oak woodland, brush, mixed conifer, and true fir. Using the GIS database, each 450-acre planning block is ranked by age and type of vegetation. These rankings identify high-volume fuel areas with accumulations of dead fuel having the potential for costly and damaging fires. Planning blocks are ranked high, medium, or low risk based on their potential as sites of costly and damaging fires.

The hazardous fuel ranking system is based on estimates of potential fire behavior associated with the particular fuel type, and it has a direct relationship to the burning characteristics of that fuel. The fuel rank is a composite index of fire behavior indicators – rate of spread, fireline intensity, heat per unit area, etc. This index represents how a fuel complex burns under a particular set of weather conditions. The intent is to provide a basic means of stratifying the landscape into areas of moderate, high, and very high hazard as related to potential fire behavior.

The rankings were determined by using the underlying fuel models in conjunction with the BEHAVE[3] fire behavior prediction system. The various fuel models were

[3] Behave fire modeling system is a computer application used to predict wildland fire behavior.

then plotted on the fire characteristics chart commonly used to evaluate resistance to control (Rothermal, 1983), where a fuel model's rate of spread is plotted against its heat per unit area. This plot represents fire behavior calculations conducted under severe fire weather conditions, where fires are more likely to escape. The farther the flame front is from the origin, the greater the fire behavior potential, and hence, the greater the resistance to control. As these fuel models only reflect surface fire behavior, additional information regarding crown fire potential and slope was also included in the development of the ranking scheme.

Generally, only those fuel models where there is a large volume of available fuels (yielding high heat per unit area) and at least a moderate expected rate of spread under severe environmental conditions have a hazard rank of "Very High", "High" and "Moderate" ranks represent lesser fuel volumes where either heat per unit area or spread rate is expected to be lower. Heavy brush and heavy forest fuel types received "Very High" ranks. Moderate brush, pine/grass, intermediate load conifer, and light logging slash received "High" ranks. Grass and low volume forest types received "Moderate" ranks.

Weather

Weather conditions dramatically influence fire behavior. Large costly fires are frequently, though not always, associated with severe fire weather conditions. Severe fire weather is typified by high temperatures, low humidity, and strong surface winds.

Fire weather history is analyzed to determine the average number of days during fire season that severe fire weather occurs.

Severe fire weather is defined using the Fire Weather Index (FWI) developed by the USDA Forest Service Riverside Fire Lab. The FWI combines air temperature, relative humidity, and wind speed into a single score. The FWI gives wildland fire managers an index that indicates relative changes in fire behavior due to the weather (fuel and topography conditions are not included in the calculation). Severe fire weather occurs when the FWI, calculated from the hourly weather measurement, exceeds a predetermined threshold. The threshold FWI is derived from average bad fire weather of (approximately) 95° F, 20% relative humidity, and a 7 mph eye-level wind speed. Frequency of severe fire weather is defined as the percent of time during the budgeted fire season that

the weather station records severe fire weather. Individual weather stations are ranked as low, medium, or high frequency of severe fire weather. This ranking can then be applied to the area on the ground represented by the weather station.

Severe Weather Analysis Parameters

FWI CUTOFF	START LOW RANK	START MED RANK	START HIGH RANK
29.725	0%	5%	20%

STATION	OWNER	LAT	LON	ELEVATION	WX-SCORE	WX-RANK
Ben Bolt	CAL FIRE	38.586	-121.017	840	0	L
Esperanza	CAL FIRE	38.243	-120.514	2512	1	L
Green Springs	CAL FIRE	37.834	-120.502	1000	2	L
Pilot Hill	CAL FIRE	38.833	-120.009	1250	0	L
Mt Zion	CAL FIRE	38.394	-120.650	2960	0	L
Secret Town	CAL FIRE	39.185	-120.882	2720	0	L
Crane Flat	NPS	37.767	-119.817	6644	1	L
Tuolumne Meadows	NPS	37.867	-119.300	9200	1	L
White Wolf	NPS	37.850	-119.650	8000	1	L
Bald Mountain	USFS	39.901	-120.686	4613	0	L
Beaver	USFS	38.519	-120.328	5700	10	M
Crestview	USFS	37.735	-119.000	7518	1	L
Hell Hole	USFS	38.900	-120.683	5240	9	M
Owens Camp	USFS	38.733	-120.250	5240	7	M
Stampede	USFS	39.483	-120.075	6600	1	L

WxSCORE

[SevereWx]/[WxInSeas] The weather score is a percentage of the number of days of severe weather during the designated fire season. Non-fire season data is not considered as the fuel is not in a state in which to readily burn regardless of the severity of weather.

WxRANK

The WxSCORE intensity rating is lumped into three categories, low, medium, and high, to create a severe fire weather frequency ranking

SECTION II: COLLABORATION

A: COMMUNITY / AGENCIES / FIRE SAFE COUNCILS

Representatives involved in the development of the Unit Strategic Fire Plan are included in the following table. Their organization and title are indicated below:

Plan Development Team:

Organization	Representative (title)
United State Forest Service	Duane Nelson, District Ranger, El Dorado National Forest Placerville Ranger District **(530) 647-5301**
Sierra Pacific Industries	Craig Ostergaard, Forester **(209) 223-7170**
Pacific Gas and Electric	Paul M. Maben, Vegetation Program Manager **(209) 736-8644**
Amador County Fire Safe Council	Cathy Koos Breazeal **(209) 296-6220**
El Dorado County Fire Council	**To Be Assigned**
Folsom Fire Safe Council	Linda Conroy, President **(916) 585-3372**
Alpine Fire Council	Jeff Brees **(530) 694-2791**
Tahoe Regional Chapter for the NVFSC	Andrew List, Executive Director **(775) 884-4455**
Tahoe Region for the NVFSC	Jessica Moore-Mahnken **(530) 543-3473**

SECTION III: VALUES AT RISK

A: ASSETS AT RISK

Assets at risk refer to real and societal values that have the potential to be burned or damaged by wildfire. Sixteen assets have been identified and ranked as to their risk from wildfire. The table on the following page provides a description of the assets evaluated.

Asset at Risk	Public Issue Category	Location and ranking methodology
Hydroelectric power	Public welfare	1) Watersheds that feed run of the river power plants, ranked based on plant capacity; 2) cells adjacent to reservoir based plants (Low rank); and 3) cells containing canals and flumes (High rank)
Fire-flood watersheds	Public safety Public welfare	Watersheds with a history of problems or proper conditions for future problems, ranked based on affected downstream population
Soil erosion	Environment	Watersheds ranked based on erosion potential
Water storage	Public welfare	Watershed area up to 20 miles upstream from water storage facility, ranked based on water value and dead storage capacity of facility
Water supply	Public health	1) Watershed area up to 20 miles upstream from water supply facility (High rank); 2) grid cells containing domestic water diversions, ranked based on number of connections; and 3) cells containing ditches that contribute to the water supply system (High rank)
Scenic	Public welfare	Four mile view shed around Scenic Highways and 1/4 mile view shed around Wild and Scenic Rivers, ranked based on potential impacts to vegetation types (tree versus non-tree types)
Timber	Public welfare	Timberlands ranked based on value/susceptibility to damage
Range	Public welfare	Rangeland ranked based on potential replacement feed cost by region/owner/vegetation type
Air quality	Public health Environment Public welfare	Potential damages to health, materials, vegetation, and visibility; ranked based on vegetation type and air basin
Historic buildings	Public welfare	Historic buildings ranked based on fire susceptibility
Recreation	Public welfare	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility
Structures	Public safety Public welfare	Ranked based on housing density and fire susceptibility

Non-game wildlife	Environment Public welfare	Critical habitats and species locations based on input from California Department of Fish and Game and other collaborators
Game wildlife	Public welfare Environment	Critical habitats and species locations based on input from California Department of Fish and Game and other collaborators
Infrastructure	Public safety Public welfare	Infrastructure for delivery of emergency and other critical services (e.g. repeater sites, transmission lines)
Ecosystem Health	Environment	Ranking based on vegetation type/fuel characteristics

Knowledge of the type, magnitude, and location of assets at risk, is critical to fire protection planning. Given the limits on fire protection resources, these resources should be allocated, at least in part, based on the value of the assets at risk. Knowledge of assets at risk is also necessary to choose those projects, which will provide the greatest benefit for a given investment.

Thus, as part of the overall fire plan process, assets were addressed at two levels. First, generalized assets at risk were estimated to indicate what areas contain high valued assets. Second, the input of collaborators further refined this assessment.

The areas with the highest combined asset values and fire risk were considered for projects, particularly where those projects would protect assets and reduce suppression costs should a fire start in the project area. Second, as potential projects were identified in these areas, they were subjected to an analysis of the degree to which the projects will reduce damage to assets and potential suppression costs.

The following table represents the weights (1-5), 1 being low and 5 being high, applied to each asset as used to compute the overall Asset Rank within the Unit.

Asset	Weight	Asset	Weight	Asset	Weight
Infrastructure	3	Timber	3	Storage (Water)	3
Water Supply	4	Range	1	Fire-Flood	2
Historic	2	Soil	1	Air	4
Scenic	2	Hydroelectric	3	Recreation	2
Housing	5	Non-game Wildlife	1	Game (Wildlife)	1
Ecosystem	3				

B: COMMUNITIES AT RISK

Wildfires burn millions of acres throughout the United States each year. These fires dramatically illustrate the threat to human lives and development.

A fundamental step in realizing this was the identification of areas that are at high risk of damage from wildfire. Federal fire managers authorized State Foresters to determine which communities were under significant risk from wildland fire on Federal lands.

The California Department of Forestry and Fire Protection undertook the task of generating the State's list of communities at risk. With California's extensive Wildland-Urban Interface situation the list of communities extends beyond just those on Federal lands.

AEU contains thirty-three communities classified at risk from wildfire. Most of which are adjacent to federal lands. These are indicated with an "F" in the “federal threat” column of the following chart. The Hazard Level Code included on the list designates a community's fire threat level where 3 indicates the highest threat.

California Fire Alliance communities at risk			
Communities	***COUNTY NAME***	***FEDERAL THREAT***	***HAZARD LEVEL***
Bear Valley	ALPINE	F	3
Kirkwood	ALPINE	F	2
Markleeville	ALPINE	F	3
Paynesville	ALPINE	F	3
Woodfords	ALPINE	F	3
Woodfords Community (Indian Reservation)	ALPINE	F	3
Amador City	AMADOR	F	3
Fiddletown	AMADOR	F	3
Ione	AMADOR		3
Jackson	AMADOR	F	3
Pine Grove	AMADOR	F	3
Pioneer	AMADOR	F	3
Plymouth	AMADOR	F	3
River Pines	AMADOR		3
Sutter Creek	AMADOR	F	3
Volcano	AMADOR	F	3
Cameron Park	EL DORADO	F	3
Coloma	EL DORADO	F	3
Cool	EL DORADO	F	3
Diamond Springs	EL DORADO	F	3
El Dorado Hills	EL DORADO	F	3
Georgetown	EL DORADO	F	3
Grizzly Flat	EL DORADO	F	3
Kelsey	EL DORADO	F	3
Latrobe	EL DORADO	F	3
Omo Ranch	EL DORADO	F	3
Outingdale	EL DORADO	F	3
Placerville	EL DORADO	F	3
Pleasant Valley	EL DORADO	F	3
Pollock Pines	EL DORADO	F	3
Shingle Springs	EL DORADO	F	3
South Lake Tahoe	EL DORADO	F	3
Rancho Murrieta	SACRAMENTO		3

SECTION IV: PRE FIRE MANAGEMENT STRATEGIES

A: FIRE PREVENTION

FIRE PREVENTION BUREAU

Battalion Chief Chris Anthony
Fire Captain Specialist Tom Oldag
Fire Captain Specialist Gianni Muschetto

2010 Fire Season Ignition Statistics

Wildland fire ignition statistics were tracked for the entire year of 2010. The Unit experienced 174 fires within its Direct Protection Area (DPA) for the year. This number represents a 23% decrease from 2009 (224 fires), and a 39% decrease from the 10-year average (282 fires).

The five largest fires in the Unit were:

1) Wetsel Fire at 155 acres, $3500 dollars of damage, cost to suppress estimated at $2,556, and the cause electrical failure.

2) Veerkamp Fire at 65 acres, $1650 dollars of damage, cost to suppress estimated at $1,000, and the cause electrical - bird into the powerlines.

3) Meiss Fire at 26 acres, $2,000 dollars of damage, cost to suppress estimated at $8,000, and the cause an unknown vehicle.

4) Latrobe / Meiss Fires at 13 acres, $2,000 dollars of damage, cost to suppress estimated at $6,000, and the cause arson – two arrested.

5) Koki Fire at 10 acres, $2,000 dollars of damage, cost to suppress estimated at $8,000, and the cause smoking.

2010 Five Largest Fires	Acres	Total Cost	Cause
Wetsel	155	$6056	Electrical
Veerkamp	65	$2650	Electrical
Meiss	26	$10,000	Vehicle
Latrobe / Meiss	13	$8,000	Arson
Koki	10	$10,000	Smoking

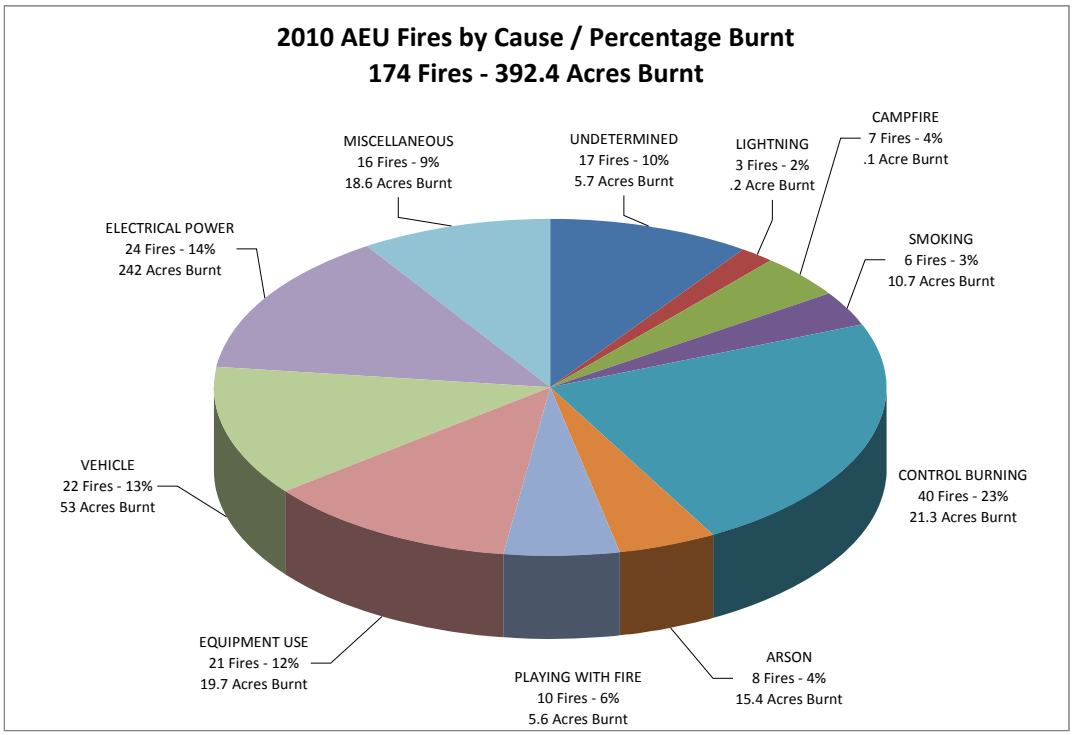
Approximately 392 acres burned in 2010 compared with the 10-year average of 1,752. Damage caused by these fires in 2010 was estimated at approximately $65,000.

In reviewing fire causes during the 2009 season, it was found that the five leading causes of vegetation fires in the Unit were:

1) Control Burning (40 fires – 23%)
2) Electrical (24 fires – 14%)
3) Vehicle (22 fires –13%)
4) Equipment (21 fires – 12%)
5) Undetermined (17 fires – 10%)

These accounted for 124 fires or 71% of all fires that occurred. These were followed in order by: playing with fire (10 fires – 6%), miscellaneous (16 fires – 9%), arson (8 fires – 5%), lightning (3 fires – 2%), smoking (6 fires – 3%), campfire (7 fires – 4%) and railroad (0 fires).

In 2010, the only category that increased over the 10 year average was Campfire caused fires. All other categories decreased from the 10-year average of fire activity. Ignitions causing the most acreage loss were electrical power at 242 acres, control burning at 21.3 acres, and equipment use at 219.7 acres. When analyzing data for the whole year, control burning caused the most fires (40) but caused resources to respond 65 additional times to legal or illegal control burns. These fires were kept relatively small.



Fire activity for 2010 was down in the Unit as well as throughout the state. In order to better address ignition management for the Unit, a more detailed analysis of the fires in each major cause classification was conducted.

1) Control Burning (debris burning) accounted for 40 fires or 23% of the total fires in the Unit. Escaped control burns resulted in 21.3 acres being burned or 12% of the Unit's total. This cause saw a 15% decrease from the 10-year average of 47. The decrease can be explained by the Unit's concerted educational program along with the elimination of control burning during unfavorable conditions (June through November). This effort has substantially limited the number and severity of these fires. The number one cause of escaped control burns was lack of clearance followed by wind, and old control burns re-igniting (coming back to life). Unattended control burns also contributed to the totals. All fire departments in Amador and El Dorado Counties are assisting the Unit in handing out legal notices (LE-38's) on all control burn caused fires. These legal notices serve to educate the public and put them on notice that their next escape will result in a citation. This cooperation has proven to continually keep number and acres lost below the 10 year average.

2) Electrical power accounted for 24 fires or 14% of the total ignitions in the Unit. Electrically caused fires resulted in 242 acres burned or 61% of the Unit's total. Electrically caused fires decreased by two from the 10 year average of 26. Most of these fires resulted from trees, branches or birds into the power lines. One electrically caused fire resulted in burning 155 acres on November 3rd, after the end of the declared fire season. The fire burnt for several hours before being discovered and was quickly suppressed by two engines and on bull dozer.

3) Vehicles accounted for 24 fires or 13% of the total ignitions in the Unit. This represents a 42% decrease from the 10-year average of 52 fires. Vehicle caused fires resulted in 53 acres being burned or 30% of the Unit's total. This represents a 76% decrease in acres burnt by vehicle from the 10 year average 405 acres. This category has been one of the leading causes of fires in the Unit for the past several years. The majority of these fires occurred along the major traffic corridors of Hwy 16, 49, 50, 88, and 124. Catalytic Converter failure and other maintenance issues remains to be the leading cause of fires caused by vehicles. With the current economic conditions there appears to be less maintenance done on vehicles.

4) Equipment accounted for 21 fires or 12% of the total ignitions in the Unit. Equipment caused fires resulted in 19 acres being burned or 5% of the Unit's total. This represents a 48% decrease from the 10-year average of 40. Equipment caused fires burnt 20 acres compared to the 10 year average of 440 acres. Historically, this classification has been one of the top causes of wildfire starts in the Unit. Through continuing displays and education programs (handouts and the 4291 Program), we hope to continue a downward trend. The main cause of equipment fires continues to be mower fires. These fires were due to mower blades striking rocks and friction igniting chaff collected around the belt. Ironically, most of the mower caused fires occurred as a result of residents

trying to clear their property for fire safety but they were clearing during the hottest part of the day, usually between the hours of 10:00 AM and 6:00 PM.

5) Undetermined accounted for 17 fires or 10% of the total ignitions in the Unit. Undetermined caused fires resulted in 5 acres being burned or 1% of the Unit's total. This category saw a 15% decrease of the 10 year average of 20. Continued hard work and dedication of the Unit's Fire Prevention Staff and the company officers who conduct thorough origin and cause investigations aid in the declining number in this cause class. Thorough origin and cause investigations also assist in determining fire patterns which may be reduced by public education and or enforcement.

6) Miscellaneous causes accounted for 16 fires or 9% of the total ignitions in the Unit. This cause class saw a 33% decrease from the 10 year average of 24. Miscellaneous caused fires resulted in 6 acres burned or 2% of the Unit's total. Acres burnt by miscellaneous caused fires saw an 86% decrease from the 10 year average of 220 acres burnt. This classification includes causes such as spontaneous combustion, fireplace ashes deposited in the wildland, barbequing, cooking fires, and fireworks. Ashes deposited in the dry vegetation caused the majority of the fires.

7) Playing with Fire accounted for 10 fires or 6% of the total ignitions in the Unit. This was an 35% decrease from the 10 year average of 18. Playing with Fire resulted in 6 acres burned or 2% of the Unit's total, one acre less than the 10 year average acres burnt of 7. Several juveniles were caught and went through either a Juvenile Fire Setter Class and others were sent to the Juvenile Justice System and sentenced to probation.

8) Arson accounted for 8 fires or 4% of the total ignitions in the Unit. Arson caused fires decreased by 76% from the 10-year average of 34. Arson caused fires resulted in 15 acres burned or 4% of the Unit's total. The 15 acres burnt represents a 90% decrease from the 10 year average of 149 acres burnt. One series of arson fires located on Meiss and Latrobe Roads burnt 13 acres. It appears the past years arrests of serial arsonists and a proactive approach in seeking out and prosecuting arsonists have caused the decrease. The continued working relationships between all fire and law enforcement agencies is definitely aiding in the cause. The importance of a thorough origin and cause investigations plays a key role in identifying fire patterns early. In past years, roadside arson fires were quickly determined to be vehicle caused. Many fires were not investigated because the origins were destroyed by suppression efforts. Origin protection and pride in initial investigations are making a difference.

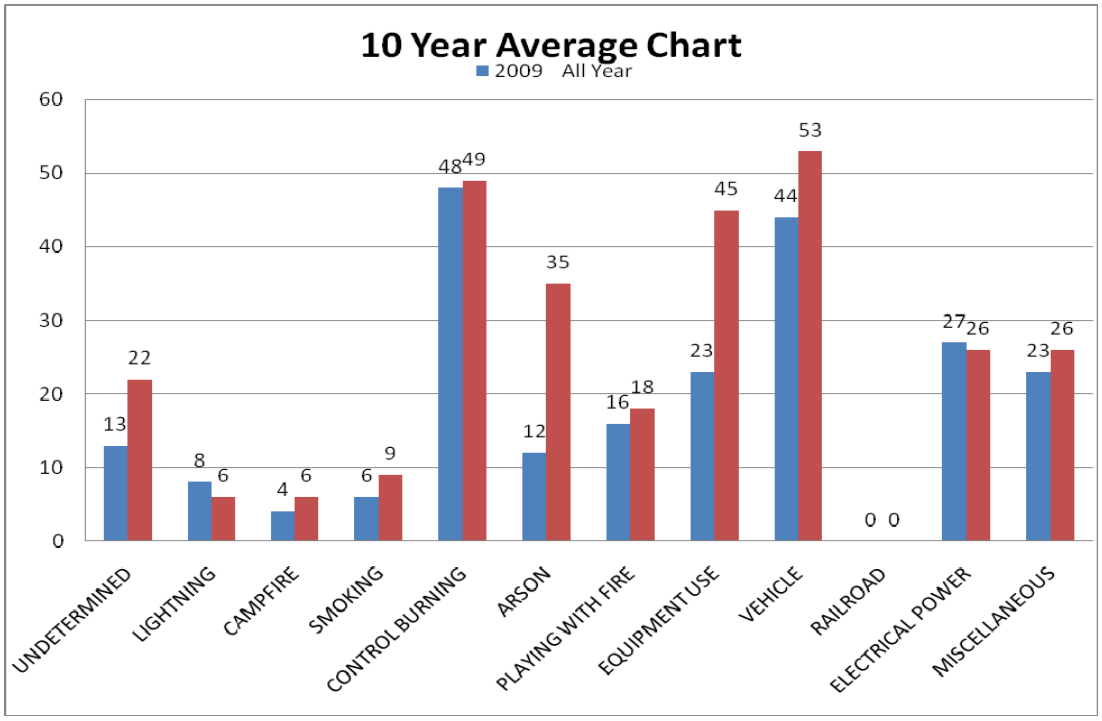
9 Illegal campfires and campfire escapes caused 7 fires or 4% of the total ignitions in the Unit. No acres burned were recorded as a result of these fires. Campfire caused fires increased by one from the 10-year average of average of 6. Unfortunately, it appears the economic conditions have effected this fire cause. Most of the small fires were at homeless camps.

10) Smoking accounted for 6 fires or 3% of the total ignitions in the Unit. This was a decrease by three fires from the 10 year average of 9. Smoking caused fires resulted in 11 acres burned or 2% of the Unit's total. One smoking caused fire burnt 10 acres on October 29th. The majority of these fires were carelessly discarded cigarettes along our roadways. However, several bark and planter box fires were directly attributed to smoking.

11) Lightning accounted for 3 fires or 1% of the total ignitions in the Unit. Lightning caused fires decreased by 50% from the 10-years average of 6. Lightning caused fires burnt no acres. Not much can be done to prevent or alter this category.

12) Railroad accounted for zero fires in 2010. Amador County has one active railroad in the western portion of the county. A private historical train is beginning to operate in the Shingle Springs / Diamond Springs Area. It is unknown as to how much of an ignition threat this may be.

The following chart compares the 2009 primary causes compared to the 10-year average.



Juvenile Firesetters

The JFS Program is initiated when a juvenile has been experimenting with fire. The juvenile and parents/caregivers are assessed utilizing the FEMA JFS assessment program. Following the assessment, the family will view one or two videos specifically designed for JFS. If further assistance is needed, the referrals are processed through the juvenile justice system.

Assessments are done in cooperation with the US Forest Service and local fire districts. The objectives of the JFS Program are:

- Identify juvenile firesetters
- Assess the juvenile firesetters needs
- Provide life skill training and education
- Provide referrals to family counseling
- Evaluate firesetters and program progress

Amador-El Dorado-Sacramento-Alpine Unit Structure Ignitability

The following section will discuss structure ignitability within the Amador-El Dorado Unit. Structure ignitability is a building's susceptibility to catching on fire. This is a growing concern as more homes and businesses continue being built in the wildland-urban interface. Measures can be taken to reduce the ignitability of structures in wildland areas by:

- Proper planning, which locates homes and communities such that their exposure to wildfire is minimized.
- Use of building design techniques that prevent flames or windborne embers from entering the structure, and use of building materials that are fire and heat resistant.
- Managing and reducing the flammable vegetation around the structure.

PLANNING: The Amador-El Dorado-Sacramento-Alpine Unit (AEU) has seen rapid growth over the last couple of decades with homes and businesses being built farther away from population centers creating new areas of wildland-urban interface. Improper planning in regards to minimizing a structures exposure to wildfire has allowed many of the structures to be built in areas that increase their exposure to the effects of wildfires, such as building on steep slopes and within or at the top of both large and small drainages. Drainages act as chimneys and funnel heat and energy from wildfires. Homes within these drainages are subjected to a lot more heat and embers during a wildfire increasing the structures chance of igniting. Many times firefighters are unable to defend structures within these drainages from an oncoming wildfire because of the amount of heat. Unfortunately, new construction continues to occur within these areas increasing the number of structures with a high susceptibility to igniting during a wildfire. AEUs Fire Prevention Bureau works with county planning and building departments to locate new construction in areas that minimize a buildings exposure to wildfire.

CONSTRUCTION: How a structure is constructed and the type of material is just as important as where a structure is located. The California Department of Forestry and Fire Protection/ Office of the State Fire Marshal has developed wildland-urban interface building standards for new construction. The objective of the Wildland-Urban Interface Fire Area Building Standards is to establish minimum standards for materials and material assemblies and to provide a reasonable level of exterior wildfire exposure protection for buildings in Wildland-Urban Interface Fire Areas. The use of ignition resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire (wildfire exposure) will prove to be the most prudent effort California has made to try and mitigate the losses resulting from our repeating cycle of interface fire

disasters. The new standards became effective on January 1, 2008 for all areas within State Responsibility Areas and on July 1, 2008 in Local Responsibility Areas classified as Very High Fire Hazard Severity Zones. The new standards address such things as roofing, attic ventilation, ignition resistant siding, decking, windows, and wall vents. The new standards will help to reduce the number of burning embers that enter a building and ignite fires. Burning ember intrusion is the main reason homes are destroyed in wildland-urban interface fires.

Fire Hazard Severity Zone Maps

In 2007-2008 CAL FIRE updated the existing Fire Hazard Severity Zone maps to coincide with the adoption of the new wildland-urban interface building standards. The updated maps have incorporated improved wildland fire behavior science, data sets, and understanding of structure ignition mechanisms during conflagrations. These fire hazard severity zones will be used by building officials to determine appropriate construction materials for new buildings in the wildland-urban interface. The updated zones will also be used by property owners to comply with natural hazards disclosure requirements at time of property sale. It is likely that the fire hazard severity zones will be used by local government as they update the safety element of general plans. The Fire Hazard Severity Zone maps and new building standards for each county can be obtained from the CAL FIRE website, www.fire.ca.gov.

DEFENSIBLE SPACE: Managing and reducing the flammable vegetation around structures will also reduce the number of structure ignitions from wildland fires. Clearing vegetation and maintaining that clearance is required by section 4291 of the Public Resources Code (PRC 4291). In 2005 PRC 4291 was amended to increase the minimum vegetation clearance requirement from 30 feet to 100 feet around structures. Although this law requires it, many landowners fail to maintain adequate clearance around their structures. CAL-FIRE's fire safe inspection program is used to enforce compliance with PRC-4291. Additionally, the fuel reduction projects within AEU are aimed at reducing wildland fuels and educating the public on what they can do for themselves to protect their homes from wildfires and reducing structure ignitability.

AEU's Volunteer-In-Prevention (VIP), Information and Education Program

VIP Program

The VIP Program has been relatively dormant since 2006 but it is anticipated that this will change in 2011. The following is a list of activities that VIP's will be recruited for and asked to provide support in.

1. Fire and Life Safety Education Programs (Schools, Groups, Events)
2. LE 100 Defensible Space Inspectors
3. Red Flag, Holiday, and Arson Patrols
4. Incident Information Center Operators

This will entail recruiting, training and coordinating activities of unit VIPs and the record keeping (VIP Database, CAL ATERS, etc) associated with the program. There will be no mandatory number of hours required to from a volunteer, but I require at least one program per year for a VIP to stay active.

Public Information Program:

As the units Public Information Officer, I provide media releases and articles, conduct live interviews (TV and Radio), prepare and disseminate fire information/incident information fact sheets, information on evacuations (in support of local law enforcement), etc. Duties include responding as an Incident Information Officer (Field PIO, PIO Center Manager, PIO in JIC, PIO on unified command incidents, etc.) locally or statewide. This year the program will expand to include coordinating a Media Safety Training for local media outlets.

Public Education and Awareness Program:

The Public Education and Awareness Program is comprised of four components. 1) School Programs, 2) Group Programs, 3) Exhibits and Displays and 4) Parades which I coordinate with Battalions for the unit.

1) School Programs are done throughout the unit and reach children from preschool through 12th grade. The "team teaching" approach is used at the schools and is done on a request basis and is generally handled by engine companies. There is a variety of programs available used depending on the request or needs of a particular school. For PreK-6th they include "Smokey Bear Team Teaching", "Flannel Board", "9-1-1", "Stop/Drop and Roll", "Crawl Low Under Smoke", "Exit Drills In The Home", "Friendly Firefighter", "Fire Station Tours", State Farms Smoke Detectives, Bic's Play Safe-Be Safe, Masters of Disasters and Learn Not To Burn.

For 7th-12th grades the presentation is given in an assembly setting and the focus will range from Juvenile Fire Setting behaviors to Career Days. The Juvenile Fire Setting education program is presented in the following format: introduction; ice breaker, explanation of who, what, when, where and why juveniles set fires and the consequences. A discussion follows on making good/bad choices, responsibilities of those choices (civil and criminal) and a review of basic fire safety principals. For Career Days the program will include the an overview of the agency, its mission and the types of careers available and levels of education required to be competitive in the specific field.

*It has been an ongoing challenge to get support from local schools to allow fire and life safety programs into the classroom. With their required curriculums and testing policies, time in the classroom is at a premium. Too often they have turned down offers by the fire departments. This will remain a challenge but annually the schools are approached and offered free programs.

2) Group Programs are done on a request basis and can cover all fire and life safety topics including Defensible Space, Disaster Preparedness, Preparing a "Go Kit", Senior Fire Safety, Fire Safety for the Disabled, Special Needs and Fire Safety, etc. We provide these presentations to the public, local businesses, groups, clubs and organizations. Requests vary and presentations maybe done in conjunction with another such as a fire agency or law enforcement.

3) Exhibits and Displays such designed and constructed for fairs, parades, home and garden shows, wildfire awareness week, fire prevention week, burn awareness week, arson awareness week, homeowner association gatherings, National Night Out, etc. These may be done in concert with another emergency service agency, local government, fire safe council, etc.

4) Parades are handled at the Battalion level and requests are directed to the Battalion Chief. If it is appropriate, a fire engine and other equipment may be directed to participate.

<u>In 2010 AEU field Battalions logged approximately 1400 hours of public education programs.</u>

Juvenile Fire Setter Program (JFS)

Under the direction of the Fire Prevention Bureau Chief I am responsible for developing and maintaining the Units Juvenile Fire Setter Intervention and Education Program. I manage the JFS cases that can originate from CAL FIRE Fire Prevention personnel, local and federal fire agencies, local law enforcement, Probation and the District Attorneys Office for the Unit which includes: 1) Assessment of the juvenile for future fire setting. 2) Educate the juvenile and family about fire setting and fire safety. 3) Make recommendations to Juvenile Justice (Probation/District Attorneys Office), Social Services, Mental Health, Child Protective Services and private mental health providers. I also assist local and federal agencies with their JFS programs on a request basis.

LE 100 Defensible Space Program

In 2010 there were 5 CAL FIRE fire fighters hired on April 1st to begin inspecting high hazard areas in each Battalion. By years end there were 5162 inspections completed by Battalions 1,2,3,4,5, and 8. Federal (US Forest Service) and Local government agencies (El Dorado County Fire, El Dorado Hills Fire, Latrobe Fire, Mosquito Fire, City of South Lake Tahoe, Meeks Bay Fire and Jackson City Fire) completed 4363 inspections and the two Fire Safe Councils (Amador Fire Safe Council and El Dorado County Fire Safe Council) completed 2967 inspections for a total of 12,492 inspections for 2010 in AEU.

Vegetation Management Program

During the past 10 years, the Unit has treated an average of 500 acres annually under the Vegetation Management Program (VMP). Currently the Unit has treated approximately 20,000 acres since 1982, with an estimated 500 additional treated acres by the end of the year. Many of the projects undertaken in the Unit have been within the wild land-urban interface. Due to the existing land use patterns within the Unit and the increasing population densities in Amador and El Dorado Counties, it is anticipated that the emphasis of the Vegetation Management Program will continue to focus projects within the wild land-urban interface areas. Future projects will concentrate on densely populated areas with high assets at risk.

California Forest Improvement Program (CFIP)

Both federal and state cost share programs exist to assist private timberland owners in the management of their lands; CAL FIRE will pay as much as 90% of the cost of the project. The California Forest Improvement Program (CFIP) has recently been funded to aid non-industrial timberland owners in managing their lands. Many of the cost share practices such as site preparation, timber stand thinning, pruning, and chemical release aid in managing and reducing fuel loading on non-industrial timberlands.

In 1999, CAL FIRE foresaw the need to expand the ability of the program to meet other watershed needs. These measures include thinning, shaded fuel breaks, and other land treatments or forest resource improvement projects consistent with Section 4794.

Proposition 40 Fuel Reduction Program

The goal of the CAL FIRE Prop-40 Fuels Reduction Program is to reduce wildland fuel loadings that pose a threat to watershed resources and water quality. These funds would be for planning, administration, and implementation of forest land and fuels management projects that protect watersheds from catastrophic wildfire, thereby improving water quality, protecting habitat and fisheries, and controlling erosion and sedimentation in the Sierra Nevada region.

CAL FIRE is using the VMP program, Community Assistance Grants (CAG's) and CFIP as tools to accomplish the goal of protection of the targeted watersheds, specifically fuels management projects. In order to protect these stands from fire it may be necessary to accomplish more than the standard lopping of fuels generated from hand site preparation, Pre-commercial thinning (PCT), pruning and/or release activities. The table below displays the

Community Assistance Grant projects implemented under the Proposition 40 Program:

Project name	Type	County	Treated Acreage	Completion Date
Auburn Lake Trails #2 - Perimeter Common Lots	Modified shaded fuelbreak	El Dorado	Up to 251	April 15, 2009
Gold Ridge Forest #1 -Priority Common Lots	Modified shaded fuelbreak	El Dorado	130	April 15, 2009
Chrome Ridge #1	Modified shaded fuelbreak	El Dorado	41	April 15, 2009
City of Placerville #1 - Gold Bug Park	Modified shaded fuelbreak	El Dorado	45	April 15, 2009
SPI #2 - Sly park / Swansburrough	Modified shaded fuelbreak	El Dorado	170	April 15, 2009
Sand Ridge #3 - Wolverine Modified Shaded Fuelbreak	Modified shaded fuelbreak	El Dorado	30	April 15, 2009
Auburn Lake Trails #3 - Perimeter Private Lots	Modified shaded fuelbreak	El Dorado	Up to 239	April 15, 2009
Meeks Bay Fire	Chipper	El Dorado		April 15, 2009
Lake Valley Fire	Chipper	El Dorado		April 15, 2009
Sandridge #1 Freshwater lane	Roadside fuelbreak	El Dorado	6.5	Dec 31, 2007
Sandridge #2 Puma Point / Jaguar lane	Roadside fuelbreak	El Dorado	8.0	Dec 31, 2007
Georgetown #1 Spanish Dry Diggins	Roadside fuelbreak	El Dorado	20	Dec 31, 2007
Mosquito Priority Evacuation Routes phase 2	Roadside fuelbreak	El Dorado	23	Dec 31, 2007
South Rubicon Bay Fuels Reduction	Fuelbreak	El Dorado	20	Dec 31, 2007
Fallen Leaf Fire Project 4, Phase 1 Fallen Leaf Road	Fuelbreak And Thinning	El Dorado	14	Dec 31, 2007
Jackson Extension Fuelbreak (46Ac)	Fuelbreak	El Dorado	46	Dec 31, 2007
Antelope Fuelbreak (50% of Project= 75Ac.)	Fuelbreak	Amador	147	Dec 31, 2007
Marz Fuel Modification	Fuelbreak	Amador	59	Dec 31, 2007
*Bear Valley -- total cost $58,280(funded AEU/TCU)	Fuelbreak	Alpine	30	Dec 31, 2007

Grizzly Mtn Defense Zone	Fuelbreak	El Dorado	8	Dec 31, 2007
City South Lake Tahoe Fuels reduction Project (Springwood)	Fuelbreak	El Dorado	30	2009
El Dorado RCD C.A.G.- Uncle Toms Pre Fire mgmt area I	Modified shaded fuelbreak	El Dorado	200	May 31, 2007
Auburn Lake trails C.A.G.	Roadside fuelbreak	El Dorado	65	Dec 31, 2006
Mosquito Priority Evacuation Routes	Roadside fuelbreak	El Dorado	62	Dec 31, 2006
Amador FSC C.A.G - Shake Rams Fiddletown complex	Fuelbreak	Amador	143	2006
Alpine FSC C.A. G.-Hot Springs Road Right-of-Way Fuels Treatment	Roadside Fuelbreak	Alpine	30	2009
Fallen Leaf Lodge Homeowners	Fuelbreak and Thinning	El Dorado	25	2009
Lake Valley Fire Protection District Chipper Program	Chipper	El Dorado	245	Oct. 2005
Christmas Valley 3 Fuelbreak (Combined into Chipper Agreement)	Fuelbreak and Thinning	El Dorado	25	Nov. 2006
Meath Road C.A.G	Modified Shaded Fuelbreak	Amador	112	April 15, 2010
Grizzly “GF4” PFSB	Perimeter Fuelbreak	El Dorado	129	April 15, 2010
Logtown #1	Fuelbreak & Thinning	El Dorado	127	April 15, 2010
Greenstone country #1	Modified Shaded Fuelbreak	El Dorado	50	April 15, 2010
Markleeville/Woodfords Fuel Reduction	Roadside Fuelbreak	Alpine	100	April 15, 2010

California Tahoe Conservancy Fuel Reduction Program

The California Tahoe Conservancy (CTC) conducts fuel reduction projects throughout the Lake Tahoe Basin through their Urban Land Management Program.

Pre-Fire Engineering

Prefire engineering is a critical part of the unit fire plan. GIS mapping is used to analyze the fire environment and help unit managers make key decisions for on the ground prefire projects. It is the goal of engineering to provide the most current and accurate data for the fire plan process. This goal is accomplished by field validating the data with unit battalions, collaborators, county officials, and federal agencies.

Objectives:

- Update the Assets At Risk data
- Update the fuels for the unit
- Maintain current and up to date county parcel data
- Work with Unit personnel and collaborators to enhance the fire plan data
- Asses the weather rankings for accuracy

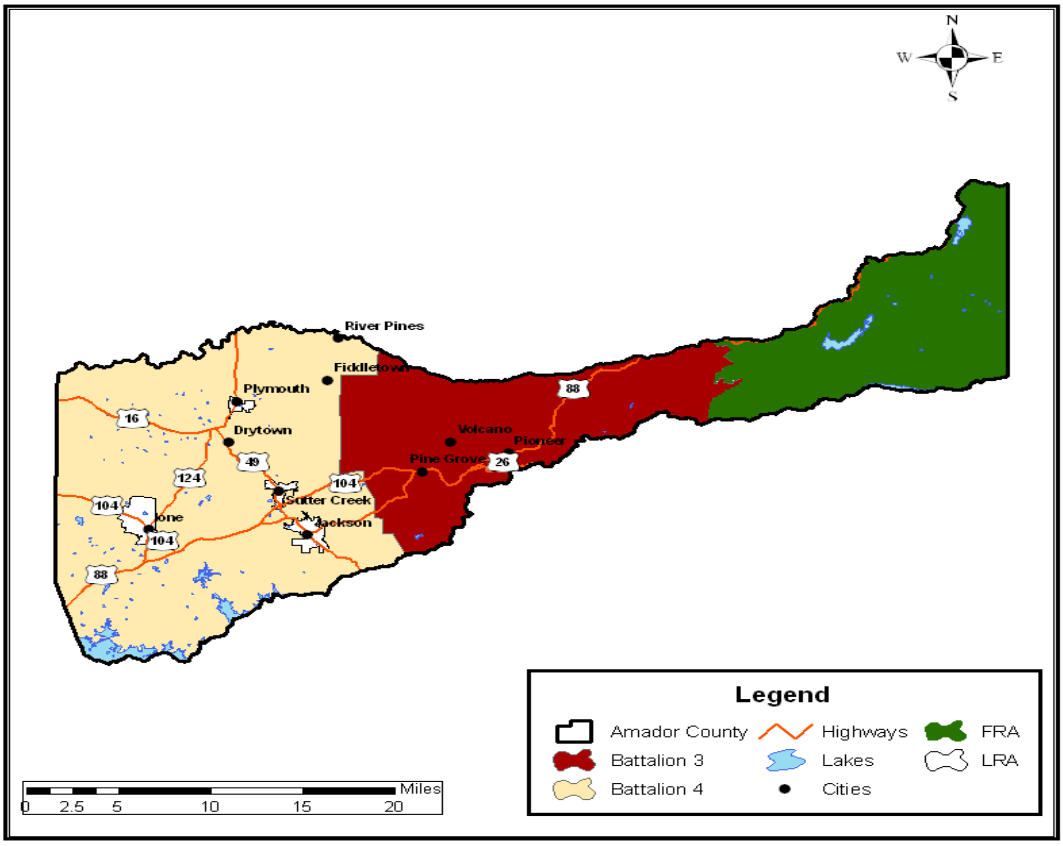
SECTION V: PRE FIRE MANAGEMENT TACTICS

A: DIVISION / BATTALION / PROGRAM PLANS

Amador-El Dorado-Sacramento Alpine Unit Fire Planning By County

Amador County

Amador County consists of 299,861 acres of CAL FIRE Direct Protection Areas and is divided into CAL FIRE Battalion's 3 and 4 as shown below:



Battalion 3 – Battalion Chief Charlie Blankenheim

CAL FIRE Battalion 3 is 185,062 acres and encompasses portions of El Dorado and Amador counties. Within Amador County the communities of Pioneer, Pine Grove, Volcano, and Lockwood are within the Battalion. The fuel types in the Battalion range from 45% timber, 48% brush, to 7% grass/oak woodland.

Like many areas in the Sierra Nevada's there exists a significant wildland-urban interface problem within Battalion 3. There are several large, well populated subdivisions within Battalion 3 that are at risk from a catastrophic fire occurrence.

Battalion 3 consists of two CAL FIRE stations, a Conservation Camp, one un-staffed lookout, and Mount Zion State Forest (160 acres). Pine Grove station, in Pine Grove, has two engines, while Dew Drop station, east of Pioneer, and has one engine. Pine Grove Conservation Camp provides four hand crews. Dew Drop station is staffed year-round, and during fire seasons the El Dorado National Forest operates an engine out of the Dew Drop station.

Three local agency fire districts lie, at least partially, within Battalion 3. These fire districts are; Pioneer Fire in El Dorado County, Lockwood Fire, and Amador Fire Protection District in Amador County. A close working relationship is maintained with each district as well as with the USFS.

Current Battalion 3 Projects:

Pine Acres Fire Safe Project

The Pine Acres Fire Safe Project is an attempt to establish a defensible fuel zone between the community of Pine Acres and the Mokelumne River Canyon. This project has been on going for 8 years. The current phase is a Fire Safe Council Project. This year's work will consist of an herbicide application to kill the re-growth on previously treated lands. The crews from Pine Grove will then cut the dead vegetation in the fall.

The funding for this project is through a grant written by the Amador Fire Safe Council.

Cooperators / Collaborators
Amador-El Dorado-Sacramento-Alpine Unit, Amador County Fire Safe Council BLM, and Local landowners

Omo Ranch Fire Safe Project

Omo Ranch Fuel Break is a defensible fuel zone/shaded fuel break along Omo Ranch Road in Amador and El Dorado Counties. The project begins at Highway 88 and progresses west to Road E16 near Mt. Aukum. This project also includes the Barney Ridge and Farnham Ridge fuel breaks. The primary purpose of the project is to establish a defensible fuel break to protect the interface communities of the area and to support fire fighting operations. The community of Omo Ranch is a small and relatively isolated community in southern El Dorado County.

CAL FIRE, Sierra Pacific Industries, and the USFS have completed most of the work. The next phase will be a maintenance program. All work to be completed by CAL FIRE is covered by a mitigated negative declaration and a VMP contract. All work on the National Forest lands was completed by the USFS.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Amador Fire Safe Council
El Dorado County Fire Safe Council
Sierra Pacific Industries

Shake Ridge/Antelope Fire Safe Project

The primary objective of the project was to establish defensible fuel zones around the community near Amador Pines and provide assistance with fire safe clearances. The project also includes the areas of the Scott Creek and Fiddletown fuel breaks. This project includes prescribed fire, fire crew pre/post prescribed fire treatments, roadside clearance work, dooryard chipping, mastication, tree thinning, and enhanced fire safe inspections. All work on this project has been completed with a mitigated negative declaration and the State Vegetation Management Program.

This project has been on going for about 10 years. The work currently being done is construction of a shaded fuel break along Fiddletown Road. This phase is funded through the VMP program.

The Amador Fire Safe has a grant which is funding the continuation of the shaded fuel break in the Antelope Creek drainage south of the Rabb Park and Silver Lake Pines subdivisions.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Sierra Pacific Industries

Amador Fire Safe Council & Local landowners

Pioneer Volcano Community Wildfire Protection Plan

This project is a joint effort between the Amador Fire Safe Council, the Local Government Fire Departments, community leaders, and CAL FIRE. Once complete, it will be a comprehensive plan which addresses, fuel reduction, ingress and egress, evacuation plans, community hazards, road signage, water supply, and any other wildfire related issues. This plan is part of the Amador County CWPP that was approved last year. Once complete, this CWPP will become the template for other CWPPs in the county.

This project is funded by a grant through the Amador Fire Safe Council. Currently Retired Cal Fire Unit Chief Jim Simmons is evaluating different communities in the CWPP for fire danger. He is using a model that looks at water supply, street signage, access, and other factors which would create hazardous situations during a wildfire.

Future Battalion 3 projects

Doakes Ridge Fuel Break

Develop a fuel break on Doakes Ridge and surrounding lands to tie the Antelope Fuel break in with SPI fuel breaks on Cooks ridge. This project will begin in the fall and will consist of mechanical work, crew work and broadcast burning. Most of the work will be on PG&E and SPI ground.

Pine Acres Fire Safe Project

Maintain a defensible fuel zone within and between the community of Pine Acres and the Mokelumne River Canyon.

Develop a Community Wildfire Protection Plan/Evacuation Plan for the Pine Grove/Pine Acres area.

Develop a Public Education Program (Including Public Information Mailer/Self-Certification*) for PRC 4291.

Shake Ridge/Antelope Fuel Break

Develop New and Maintain existing defensible fuel zone extending West on Shake Ridge towards Volcano.

Tiger Creek Fuel Break

Develop a defensible fuel zone extending west from the Antelope Fuel Break to the Tiger Creek Power Plant on the Mokelumne River. Coordinate with other groups to facilitate ingress/egress route clearing.

Omo Ranch Fuel Break

Develop new and maintain existing defensible fuel zone/shaded fuel break along Omo Ranch Road in Amador and El Dorado Counties beginning at Highway 88 and progressing North-West to E-16 in Mt. Aukum.

Surrey Junction Fuel Break

Develop a defensible fuel zone extending North-East from Ridge Road, beginning in the vicinity of Bates Road, and following the 2000 foot contour line around the Surrey Junction and Tanyard Hill residential areas to Lupe Road.

Coordinate with other groups to facilitate ingress/egress route clearing.

Defender Grade Fuel Break

Develop a defensible fuel zone extending South from Highway 88 at Pioneer following ridges to Highway 26 and then to Mokelumne River Canyon.

Coordinate with other groups to facilitate ingress/egress route clearing.

Public Information Mailer/Self-Certification*

In order to achieve all of the potential benefits of Defensible Fuel Zones established and/or in progress, an aggressive public education program is required. This public information program will target developed properties within the community. The purpose of this public education program is to provide information about individual defensible fuel zones (defensible space) around property improvements.

In order to maximize the distribution of information to the community, it is the intent to utilize a public education mailer. The mailer will include information about defensible space, fire safety precautions and a self-certification process. The self-certification process will allow community members to interact with the department regarding:

1. The completion of defensible space work
2. Incomplete defensible space work/non-response
3. Questions regarding defensible space work

Information provided by the self-certification process will be mapped in ArcView for GIS evaluation of compliance and non-compliance/no response.

Battalion 3 Ignition Management Plan

Equipment Use:

Public Education within the primary market to include but not limited to:

1. Power Equipment Retailers
2. Public Events (County Fair etc.)
3. Public Information Mailer
4. Burn Permit Process
5. Print and Television Media

Arson: Aggressively pursue investigations where patterned or recurring behavior appears to account for fire starts.

Electrical: Work with PG&E and SMUD to inspect and maintain power transmission lines and facilities especially in regard to clearance.

Vehicles: Work with Caltrans and Amador County Road Department to more aggressively pursue roadside fuel reduction/abatement programs.

Battalion 4 – Battalion Chief Mike Olivarria

CALFIRE Battalion 4 is 367,983 acres in size and encompasses portions of Amador, Sacramento, and San Joaquin counties. The fuel types in the Battalion range from 14% timber, to 33% brush, and 49% grass/oak woodland.

Like the other Battalion's in the Unit there exists a significant wildland-urban interface problem within the Battalion. There are several large, well populated subdivisions that are at risk to large catastrophic fires.

There are two CALFIRE stations within the Battalion. Sutter Hill station staffs one engine year-round and a second engine during fire season. A CALFIRE bulldozer is also stationed at Sutter Hill, along with an automotive shop, and the Unit's service center. River Pines station, in River Pines, staffs one CALFIRE engine year-round. There are no CALFIRE stations in Sacramento or San Joaquin counties.

Cooperating Fire Agencies

AMADOR COUNTY

The CALFIRE Academy and fifteen Amador County fire departments lie, at least partially, within the Battalion. The local fire departments include: the Amador Fire Protection District, Ione City Fire, Jackson City Fire, Jackson Rancheria Casino, Jackson Valley Fire Protection District, Lockwood Fire Protection District, Mule Creek State Prison Fire, Plymouth City Fire, and Sutter Creek Fire Protection District.

CALFIRE and the above fire departments serve the following Amador County communities: Buena Vista, Carbondale, Comanche, Fiddletown, Ione, Jackson, Jackson Rancheria Casino Fire, Martell, Plymouth, River Pines, and Sutter Creek.

Current Battalion 4 Projects:

Within Battalion 4 a strong emphasis is placed upon projects which involve fire preparedness training. Logistical and training support is provided to the CALFIRE Academy in Ione and to the AEU training program with the following projects:

Heavy Forestry Equipment Operations Training

Through the efforts of the AEU VMP Coordinator landowners who control strategically significant lands are placed under VMP contract to allow the HFEO class to practice their dozer operator skills. The land placed under contract is primarily that which is owned by cattle ranchers desiring to convert their brush covered lands to grazing lands. To enhance the effectiveness of this project CAL FIRE burns the resulting piles and the ranchers seed the treated land each fall. In

this fashion there is mutual benefit to the rancher, in the form of additional/improved grazing land, and to the Department, in the form of trained and tested operators. A collateral benefit to CALFIRE is significant fuels reduction within the training areas which are located primarily in Amador County.

Van Vleck and Nature Conservancy training sites:

Through VMP agreements, the Unit uses two sites in eastern Sacramento for training purposes. Each year the Unit burns between 500 and 700 acres of grass. We use this land to conduct Intermediate Firing Class and the FI 210 investigation class. This gives our unit personnel valuable training, while providing for range improvements and vernal pool habit improvements.

River Pines Community Fire Safe Plan

This project is funded by a grant through the Amador Fire Safe Council. The work is being done by private companies through contracts with the Fire Safe Council. There are two phases to this project. The first phase is now underway. The contractors are assisting community members in removing urban waste in the town. Junked cars, household appliances and other waste has created ingress egress issues, as well as fuel loading issues. The second phase is now being planned. It will provide a shaded fuel break around the perimeter of the town.

Jackson Rancheria Project

The Jackson Rancheria of Me-Wuk Indians has developed a gaming facility complete with a hotel and convention center. The Tribe has also purchased the 1000+ acre Caminetti Ranch property adjacent to the south boundary of the Rancheria. In addition to the gaming and lodging facilities described above there are new amenities being developed on the Caminetti Ranch portion of the property. A gas station and a one hundred space recreational vehicle park are now open. These amenities will potentially contribute to the wildland fire protection problems in the area. The Tribe is now creating fuel breaks along ridges and through drainages, which are designed to slow the spread of wildfire from and towards the commercial improvements.

Public Education Projects

There are two new public education projects within Battalion 4:
First, in conjunction with other Battalions in AEU, Battalion 4 would like to participate in an educational PRC 4291 project which would involve mailing defensible space literature to property owners within targeted high risk areas of the Battalion. These mailers would include educational material regarding PRC 4291 requirements and a process for residential property owners to complete LE

100 style inspections utilizing a self certification process. The program would also include a random follow-up inspection component to verify that the self certifications were accurate and that PRC 4291 objectives had been met.

Second, the fire prevention signs within Amador County are in a state of disrepair and the public education messages are dated. As a result, county residents drive past these signs on a daily basis and do not notice the signs nor the messages contained thereon. The objective in the Battalion is to repair and replace the signs with attention attracting features and relevant public education messages which will be noticed and embraced by the motoring public.

The following table shows the proposed signs:

LOCATION	PREVENTION MESSAGE BY PRIORITY	DIRECTIONAL VIEW
JVFPD Station 171 Quiver @ Curran Comanche	1. Defensible Space 2. Equipment Use 3. Debris Escapes 4. Fireworks	Two Sided Message
Plymouth @ south city limit, east side of Hwy. 49	1. Defensible Space 2. Equipment Use 3. Debris escapes 4. Fireworks	Single Sided Message
Fiddletown Road @ AmerCal	1. Defensible space 2. Ingress/egress/addresses 3. Debris Escapes 4. Equipment use	Single Sided Message
Highway 88 @ Dew Drop Bypass Road	1. Defensible space 2. Ingress/egress/addresses 3. Debris escapes 4. Equipment use 5. Fireworks	Single Sided Message. Reverse side is ENF Fire Danger Rating.
Highway 88 @ Pioneer Cemetery	1. Defensible space 2. Ingress/egress/addresses 3. Debris escapes 4. Equipment use 5. Fireworks	Two Sided Message
Ridge Road @ Climax Road Pine Grove	1. Defensible space 2. Ingress/egress/addresses 3. Equipment Use 4. Debris escapes 5. Fireworks	Single Sided Message
Sutter Hill Fire Station, 11600 Highway 49	1. Defensible space 2. Equipment Use 3. Debris escapes 4. Ingress/egress/addresses 5. Fireworks	Two Sided Message

Battalion 4 Ignition Management Plan

The four leading causes of State Responsibility Area (SRA) vegetation fires in Battalion 4 during the 2007 season were:

Fire Cause	Number of Fires	Acres Burned
Equipment	8	9
Debris Burning	8	4
Electrical	8	9
Arson	6	173

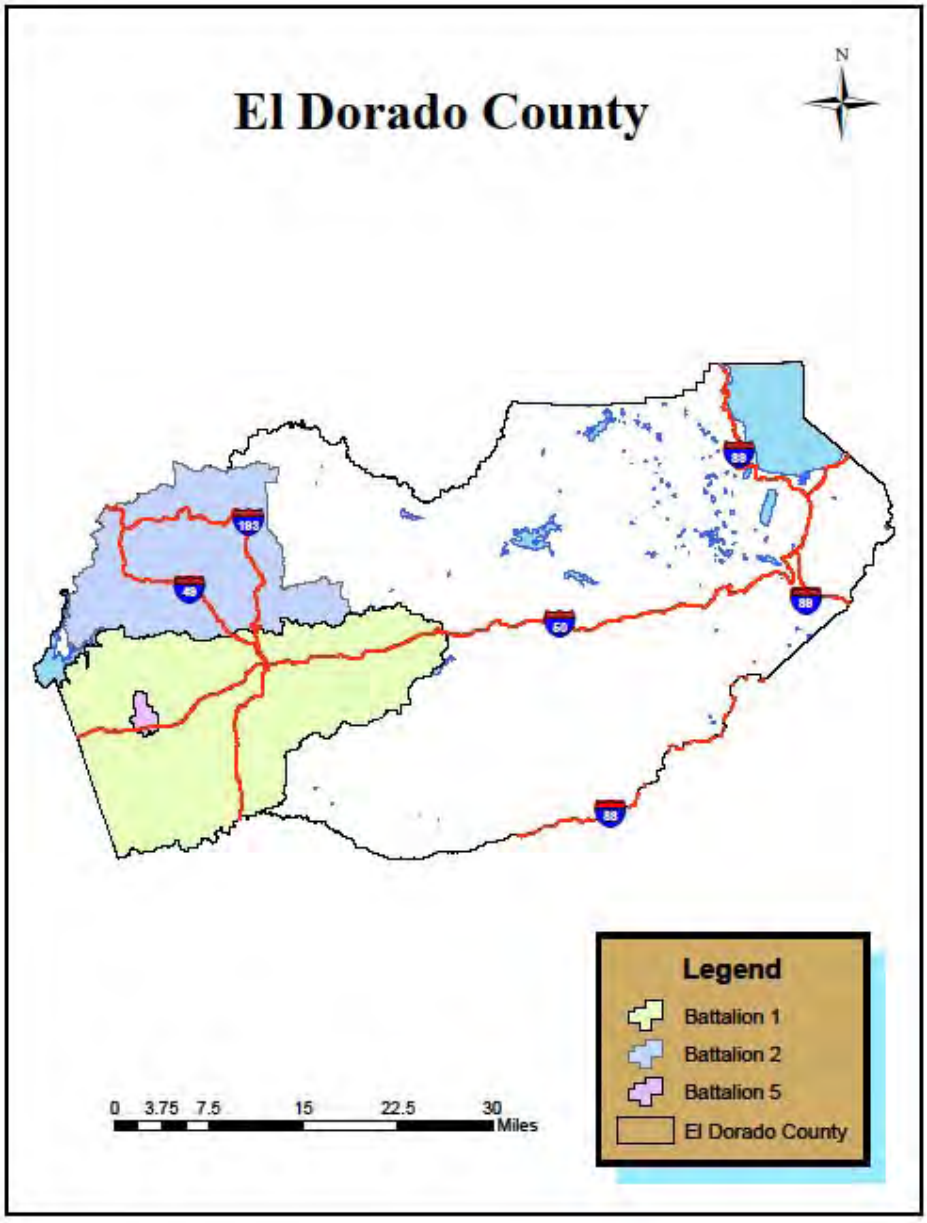
Equipment: Continued public education including prevention signs will emphasize the danger of mowing dry grass during the wrong time periods. Information will also be distributed during the spring 4291 inspections.

Debris Burning: Continued public education as to 'best practices' for conducting residential burning operations will be pursued. The best opportunities to deliver this educational message is during the face to face contacts between property owners and CALFIRE employees associated with the issuance of residential burn permits and during 4291 inspections. The opportunities shall be maximized.

Arson: Thorough and focused preliminary fire investigations along with aggressive follow up by the Fire Prevention Bureau when suspicious patterns or activity occurs shall continue to be the goal within Battalion 4.

El Dorado County

El Dorado county consists of 459,863 acres of CAL FIRE Direct Protection Area and is divided into all or portions of CAL-FIRE Battalion's 1,2,3, and 5 as shown below.



Battalion 1 - Battalion Chief Brian Estes

Battalion 1 encompasses approximately 309,544 acres in El Dorado and Sacramento counties. El Dorado County communities within the Battalion include Camino, Diamond Springs, El Dorado, El Dorado Hills, Pioneer, Logtown, Latrobe, Nashville, Cameron Park, Placerville, Pleasant Valley, Pollock Pines, Rescue, and Shingle Springs.

Battalion 1 is an active Battalion in the Amador El Dorado Unit in regards to vegetation fire response and has the highest urban interface population density in the Unit. In 2010, Battalion 1 had the highest number of vegetation fire ignitions in the Amador El Dorado Unit. Within Battalion 1 there are two CAL FIRE facilities and two fire lookout/communication infrastructure sites.

Camino Fire Station 20 and Amador El Dorado Unit Headquaters

Camino Fire Station 20 houses 1 frontline Type III Fire Engine and one reserve Type III fire engine. In addition, it houses the Battalion utility vehicle. Camino Fire Station was built in 1936 with additions completed in the 1950's and 1960's. It was built for the protection of, and continues to provide service to the surrounding lands owned by private timber companies. The Fire Station shares the compound with the Unit Administrative Headquarters, the Unit Emergency Command Center, the Unit Expanded Dispatch Center, and the Regional DGS Radio Technician Offices. In addition, the facility houses Mt. Danaher Fire Lookout. This lookout is not currently in service, but is registered with the National Historic Lookout Association and is the tallest free standing lookout tower in California.

Camino Fire Station 20 is responsible for all risk response to the areas including Camino, Pollock Pines, Placerville, Pleasant Valley, Grizzly Flat, Omo Ranch, the American River Canyon / Highway 50 corridor and is the 2nd due CAL FIRE engine into the Lake Tahoe Basin.

Camino Fire Station 20 responded to 297 incidents in 2010, down from 344 incidents in 2009. This represents the timelines that the fire station is fully staffed. Of those 297 incidents, 23% were vegetation fires.

El Dorado Fire Station 43 and North Division Automotive Shop

El Dorado Fire Station 43 houses two frontline Type III fires engines and 1 type II Fire Dozer and Transport. It also houses the Dozer Tender Unit and is the Battalion Chief Headquarters. The Fire Station shares the compound and is responsible for the North Division Automotive Shop. This facility serves as the Fleet Equipment Manager office and is staffed with 1 full time mechanic. The shop provides fleet support for all of the North Division as well as the staff

vehicles at the Unit Administrative Headquarters and assists with support to the Cameron Park Fire Department Schedule A contract.

The response area for El Dorado Fire Station 43 includes eastern Sacramento County, El Dorado Hills, Shingle Springs, Latrobe, Cameron Park, Placerville, El Dorado, Diamond Springs, Gold Hill, Nashville, Omo Ranch, Pleasant Valley, Pioneer, Grizzly Flat, and Rescue.

El Dorado Fire Station 43 responded to 779 incidents in 2010, up from 709 incidents in 2009. These responses were between May 1st 2009 and Nov. 1st, 2009. This represents the timelines that the fire station is fully staffed. Of those 703 incidents, 14% were vegetation fires in SRA.

The Battalion enjoys cooperative relationships with local fire agencies that lay within Battalion 1. In addition, the Battalion values a close working relationship with the federal land management agencies including the USDA Forest Service and the USDI Bureau of Land Management.

The Local Fire Agencies that lie within Battalion 1 boundary lines are:

- El Dorado County Fire Protection District
- El Dorado Hills Fire Department
- Cameron Park Fire Department
- Diamond Springs-El Dorado Fire Protection District
- Rescue Fire Protection District
- Latrobe Fire Protection District
- Pioneer Fire Protection District.
- Sacramento Metropolitan Fire District

Battalion 1 Hazard / Target Areas

The fuels within Battalion 1 are diverse, and include approximately 18% timber, 33% brush, and 49% grass/oak woodland.

Like many areas in the Sierra Nevada's the Battalion contains a significant wildland-urban interface problem. All communities within Battalion 1 SRA are evaluated using the following general and specific criteria to determine their Hazard/Target status:

- Potential for life loss
- Potential for property loss
- Potential for high community consequence (historical, environmental, infrastructure, etc.)
- Fuel types and fuel loading
- Ingress and egress
- Stakeholder collaboration

All communities within Battalion 1 meet the Target Hazard Criteria, some to a greater or lesser degree than others listed. According to FRAP data, approximately 95% of Battalion 1 is rated as high or extreme in SRA fire severity ratings.

Battalion 1 Ignition Statistics and Mitigation Measures

Fire cause statistics for 2010 show the following percentages for fire cause:

2009	2010
Equipment Use: 9%	Equipment Use: 12%
Debris Burning: 21%	Debris Burning: 24%
Children playing w/ fire: 10%	Children playing w/ fire: 8%
Arson: 4%	Arson: 1%
Vehicle Fire Exposure: 21%	Vehicle Fire Exposure: 9%
Electrical Lines: 9%	Electrical Lines: 18%
Smoking: 4%	Smoking: 6%
Campfires: 2%	Campfires: 6%
Lightning: 1%	Lightning: 5%
Miscellaneous: 17%	Miscellaneous: 8%

Ignition Management Plan mitigations include education during the burn permit process, target group education, and defensible space inspections. Battalion 1 issued over 1,000 LE-62 residential burn permits in 2009. Additionally, Battalion 1 performed over 1,200 LE-100 defensible space inspections. Battalion 1 assisted the Fire Prevention Bureau in providing over 200 staff hours of public education to El Dorado County in 2009.

Battalion 1 Vegetation Management Projects:

Sly Park Fire Safe Project

This project is a 1,200 acre fuels treatment project that prescribes the creation of a Defensible Fuels Zone/shaded fuel break between Park Creek Road and Sly Park Reservoir with the utilization of broadcast burning as well as hand treatment by CAL FIRE Growlersburg crews. This project provides a fuel break for the surrounding communities and natural resources around Sly Park Reservoir. Landowners, situated along the border of the project, will be allowed to participate in the Sly Park Fire Safe Project II by including their residential parcels in the fuel break.

This project has year round mitigation measures with handcrew work from Growlersburg Camp and is accelerated in the fall with prescribed fire use from Battalion 1 and 2 resources.

Cooperators:
CAL FIRE Amador-El Dorado Unit
El Dorado Irrigation District
Non-Industrial Private Landowners

Pine Hill Infrastructure Protection

This project provides defensible space to critical communications infrastructure on Pine Hill. The current communications site supports CAL FIRE, EDSO, CHP, DHS, and numerous private communications companies. In addition, CAL FIRE is responsible for the protection of the historical fire lookout on Pine Hill. The top 80 acres of Pine Hill is owned by CAL FIRE and the communications site is managed by American Tower in cooperation with DGS.

The VMP project encompasses approximately 15 acres surrounding the immediate infrastructure and will be treated with initial hand piling and burning. Once the project is placed into a maintenance mode, there is support to increase the amount of VMP acreage and to incorporate additional types of treatments including prescribed fire.

Cooperators:
CAL FIRE Amador-El Dorado Unit
Department of General Services
Pine Hill Cooperators Local Agreement

Battalion 2 – Battalion Chief Mark Brunton

CAL FIRE Battalion 2 lies primarily on the Georgetown Divide in northern El Dorado County. The communities of Georgetown, Garden Valley, Pilot Hill, Mosquito, Kelsey, Coloma, and Auburn Lake Trails are within the Battalion. The total area of the Battalion is 128,454 acres. Fuel types within the Battalion range from 19% timber, 54% brush, to 27% grass/oak woodland.

Like most Sierra Nevada areas the Battalion has a significant wildland-urban interface problem. The majority of construction in the area took place prior to adoption of the Fire Safe Regulations. This has led to areas with inadequate ingress/egress routes and insufficient defensible space clearance around structures. This problem was confirmed with the destruction of fourteen homes in the 1994 Kelsey fire.

Battalion 2 consists of two CAL FIRE stations, a Conservation Camp, and one un-staffed lookout. Garden Valley station and Pilot Hill station are each two engine stations, with Growlersburg Conservation Camp, located outside of Georgetown, providing five hand crews.

Five local agency fire districts lie, at least partially, within Battalion 2. These fire districts are; Garden Valley, Georgetown, Mosquito, Rescue, and El Dorado County Fire. A close working relationship is maintained with each district as well as with the USFS.

Current Battalion 2 Projects:

Auburn Lake Trails Fire Safe Project

The Auburn Lake Trails subdivision is situated at the rim of the American River canyon at the edge of the lake that would have been formed by the Auburn Dam. Exclusion of fire and the heavy public use below the subdivision create a very hazardous condition with respect to the potential for ignition. The topography, fuels, and significant numbers of homes create a combination of factors that will cause significant resource damage as well as a major risk to life safety within the community.

The primary strategy is to establish defensible fuel zones around and within the subdivision. CAL FIRE fire crews will conduct VMP project work on federal lands adjoining the subdivision. Private land owners will be asked to participate in the VMP so fuels reduction will continue on the private lands between homes and the federal lands project area. The property owner's association retains control of all the common area within the subdivision and is the primary partner with the Auburn Lake Trails VMP. Currently CAL FIRE has treated approximately 200 acres of federal and private lands.

Cooperators/Collaborators
CAL FIRE AEU and NEU
ALT Fire Safe Council and Homeowners Association
California Department of Parks and Recreation
United States Department of the Interior, Bureau of Reclamation

Battalion 2 Hazard/ Target Areas

The entire area covered within Battalion 2 would be considered a Target Area with significant potential. As noted earlier, the Divide has a significant fire history that has proven to challenge fire suppression efforts over the years. With the increase in population within the Divide, the potential for increased ignitions are ever growing. Some Target Areas include but are not solely limited to:

Community of Mosquito
Community of Garden Valley and surrounding communities
Community of Georgetown and surrounding communities
Auburn Lake Trails
Major travel corridors noted below
American River Drainage
Coloma State Park

Future Battalion 2 Projects:

Future projects within the boundaries of Battalion 2 should focus on the following areas:

Continued work on the ALT Fuels project including roadside clearing and ALT greenbelt/ common space areas.

VMPs with major landholders to reduce fire hazards and noxious weeds.

Roadside clearances along all major routes of travel on the Divide.

- Hwy 49 corridor
- Hwy 193 corridor
- Rock Creek Road
- Mosquito Road
- Sliger Mine Road
- Spanish Dry Diggings Road
- Wentworth Springs Road
- Marshall Road
- Bayne Road
- Shoo Fly Road
- Bear Creek Road

- Spanish Flat Road
- Rattlesnake Bar Road
- Salmon Falls Road

Fuel Break Projects in the Mosquito area to continue towards connecting with fuels projects already accomplished by the USFS.

Fuels reduction in the Shoo Fly/ Bear Creek Road areas to work towards connecting with the USFS Darling Ridge Fuel Break.

Opening and maintenance of the Truck Trail between Tim Mine Rd and Rock Creek Road allowing emergency equipment access between these two locations as well as providing a fuel break.

Continuous Defensible Space inspection program (PRC 4291)

Battalion 2 Ignition Management Plan

Fire season 2007 statistics showed that the three leading causes of wildland fire ignitions were as follows:

- Debris Burning
- Equipment
- Arson

Acres burned by each category were as follows:

- Debris Burning 22
- Equipment 32
- Arson 127

A total of 181 acres of wildland were lost due to these categories.

Some mitigations to reducing these ignitions are as follows:

Debris Burning: Continued education of the public in appropriate dooryard burning practices and regulations.

Work with Prevention Bureau in increased enforcement of regulations and citations/ cost collection of fires escaping control.

Burned acreage in this category remains static over the past 3 years.

Equipment: Continued public education through Public Safety Announcements in print media/ fliers as to potential hazards of equipment in wildland areas as well as spark arrestor laws/ regulations.

Arson: Continued work by the Prevention Bureau in the development of their investigations of ongoing cases that should alleviate this issue unique to 2007. One fire in particular has been attributed to a suspect arrested in 2007 for arson. This fire was the majority of the acreage associated with the 2007 statistic.

With the assistance of the Defensible Space Inspections, fuels treatment and Proposition 40 projects, fire spread and damage can be significantly reduced.

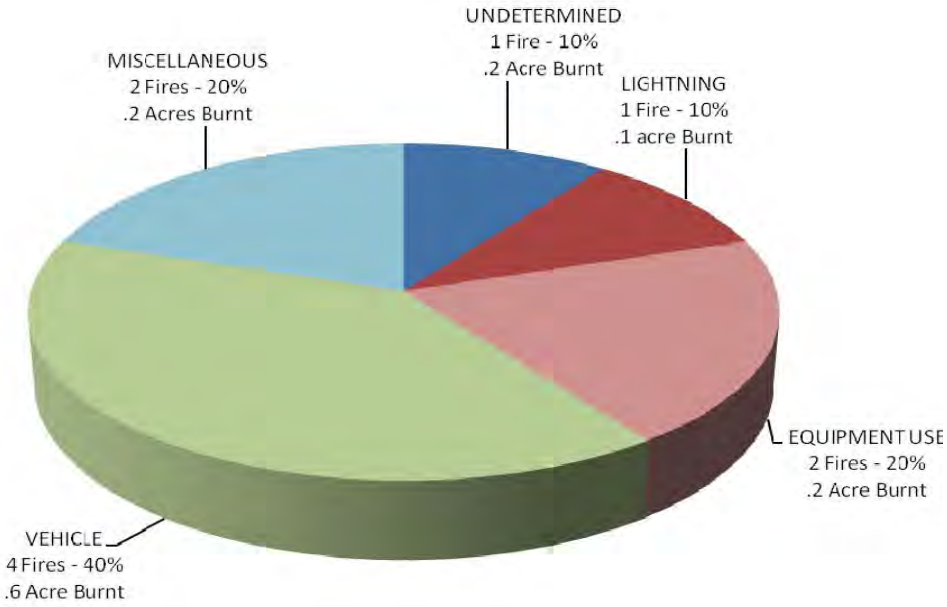
Battalion 5 - CAMERON PARK

Battalion Chief Joe Tyler
Battalion Chief Mike Webb (Fire Marshal)

General Information

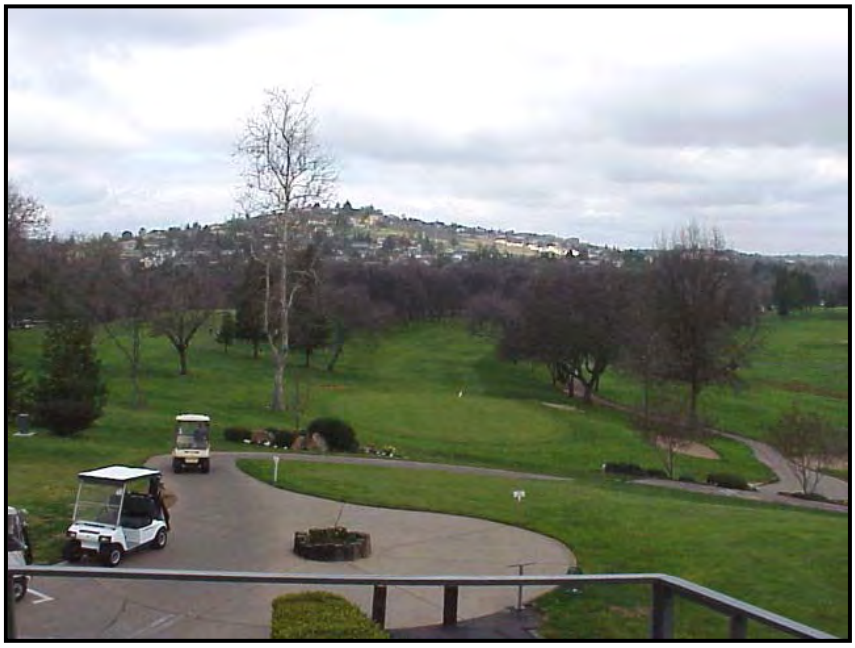
Location:	West Slope, El Dorado County, California
Geographic Coordinates:	W120°-59'-15" ; N38°-41'-02" *(@ Cameron Airpark)*
Area:	8.5 square miles *(5,440 acres)*
Terrain:	Foothills
Elevation:	Low 1000' *(Cameron Estates)* Mid 1250' *(Cameron Airpark)* High 1600' *(Pine Hill Preserve)*
Land Use:	Residential (70%); Recreational (10%); Commercial (8%); Nature Preserve (6%); Industrial (3%); Airport (2%); Highway (1%)
Population (2010 Est.):	18,225
Housing:	Single Family – 5,588 Dwelling Units Multifamily – 1,298 Dwelling Units

2009 AEU Battalion 5 Wildland Fires by Cause
10 Fires - 1.2 Acre



Community History

Cameron Park is a foothill community on the west slope of the Sierra Nevada mountain range in El Dorado County. Established as a community services district in the 1960's, the community initially consisted of several hundred residents living around a championship golf course and a small commuter airport located on the Highway 50 corridor.



The Cameron Park Country Club is located in a central valley at the south end of the community. In this view from the clubhouse (facing northwest) a ridge in the background rises approximately 300 feet above the fairway. Many homes are nestled into dense concentrations of highly flammable, mature, brush along Woodleigh Lane and

Theadjoining streets located on the top of this ridge. The Cameron Park Airport sits in the central part of the valley immediately north of the golf course. In this view of the runway (facing northwest) surrounding homes can barely be seen through dense stands of oak woodland and brush.

Community Development

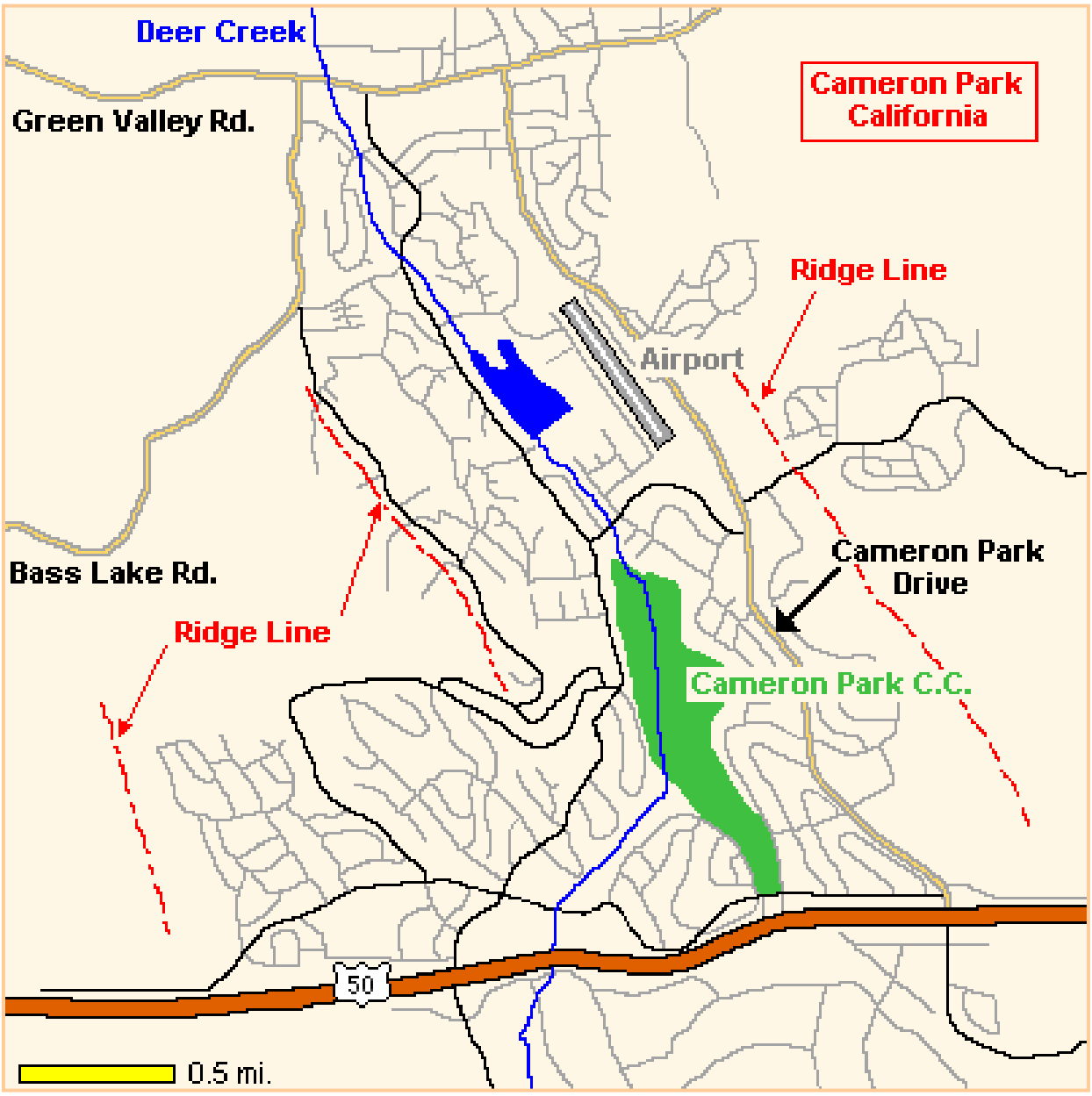
Since the Cameron Park Community Services District was formed in 1961, more than 5,500 single family homes, 1200 dwelling units (multi-family complexes), commercial buildings, retail centers, industrial plants, and schools have developed in an eight and one-half square mile area. The population has grown from 400 residents to an estimated 18,225 residents. The community development is in areas where buildings and combustible vegetation are collocated in an environment referred to as a ***wildland-urban interface***.

Commercial buildings - In the background is a dense stand of brush near a retirement community and Marshall Hospital. Some private homes can be seen along the ridge top with the brush field below them.

Much of the commercial and residential development in the District is surrounded by a dense stand of native flammable vegetation. In this case Manzanita, Chemise, and Digger Pines are in close proximity to the building.

Geography

The general topography of the area consists of a central valley along the Deer Creek drainage, approximately ½ mile wide with a northwest/southeast orientation. The golf course, airpark, a 40 acre lake, and surrounding residences are the primary features in the valley. The elevation at the valley floor is in the range of 1200 to 1300 feet above sea level. Much of the valley is enclosed between ridges to the east and west sides. The ridge tops rise 300 to 400 feet above the valley floor. Slopes leading up to the ridge tops range from approximately 15% to 35%.



The Wildland-Urban Interface Problem

Development in Cameron Park has created a wildland-urban interface condition in an area with mature stands of brush, and dense oak woodland forests. Manzanita and Chemise are the most common brush species reaching heights greater than 10 feet. There is a large amount of dead material in the brush. Oak species include large varieties such as Blue Oak and Valley Oak. However most of the trees are of the smaller brushy varieties such as Live Oak or Holly Oak.

Some areas of the community, mostly the lower elevations and gentler slopes, include seasonal dry grasses. There are several areas of open space in the community ranging from 5 acres to 300 acres. Some of the open, space such as the golf course, airport, and Cameron Park Lake, have been cleared of flammable vegetation. Much of the open space such as undeveloped lots and preserve lands (Pine Hill Preserve), are covered with flammable vegetation providing areas in and around the community where a large wildfire could become established.

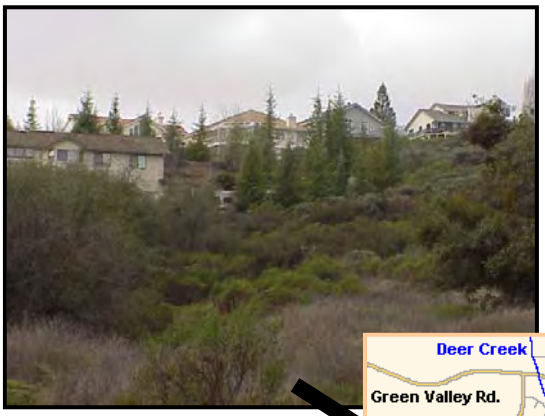
A large patch of brush located on the east side of a ridge, below Woodleigh Lane. To the right a subdivision of new homes has been carved into the hillside. At the bottom of the hill is the Deer Creek drainage which passes through Cameron Park Lake (right side of photo).

Residential development throughout the district includes the valley floor, ridge tops, and the slopes that lead up to the ridge tops. Many of the homes were built in the 1970's and 1980's, before the County of El Dorado adopted standards for roof construction. Homes with wood siding, wood decks, and shake roofs, nestled into heavy fuels on steep slopes are common. Currently, the average density of homes in the community is approximately 1 home per acre (5,180 residences in 8.5 square miles). However, residential lot sizes typically range in the ¼ to ½ acre size, providing for densities in some areas of more than four times the average. Many of the residential roads in the community are narrow, winding, and do not support 2-way traffic when cars are parked on the road sides, thus complicating fire suppression and evacuation procedures.

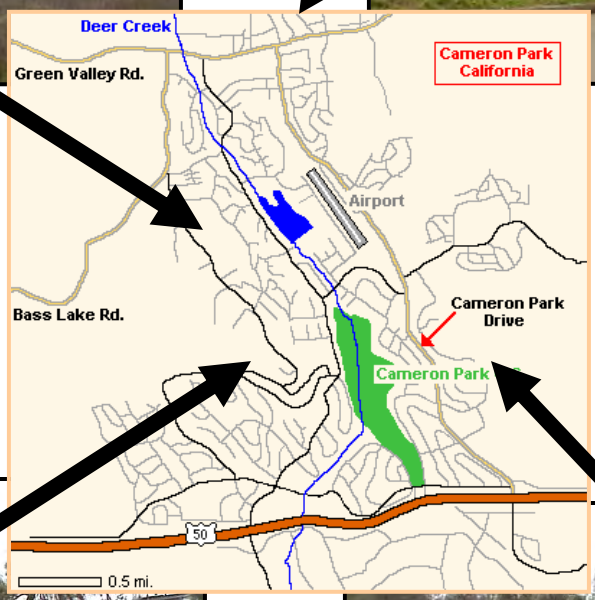
Typical Wildland-Urban Interface Conditions

Although the most recent subdivisions have required fire safe plans, the wildland-urban interface problem remains a hazard throughout the community. Development between 1950 and 1990 typically did not remove or modify combustible vegetation sufficiently to eliminate the fire risk. Newer subdivisions since 1990 have created a fire safe environment within the subdivision, however flammable vegetation often remains around the perimeter. Below are some typical examples of wildland-urban interface conditions in the community.

Woodleigh Lane



Royce Drive



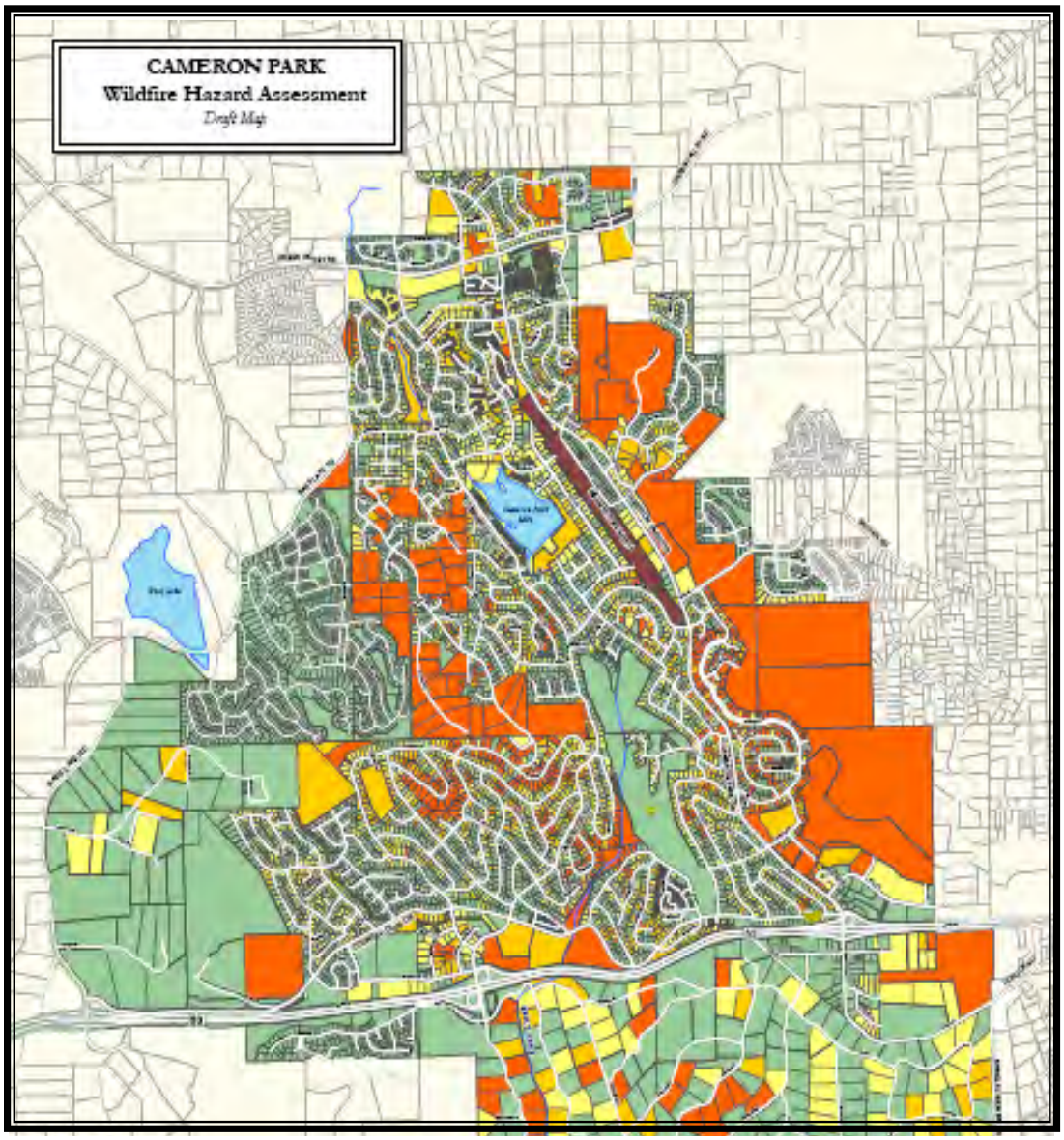
Knollwood Drive

Sudbury

Road

Cameron Park Wild Fire Community Hazard and Risk Assessment

The Cameron Park Fire Safe Planning and Fuels Reduction Project depicts, in detail, the critical fire hazard and threat to Cameron Park. This tool allows Cameron Park to prioritize wildland urban interface mitigation projects. The complete geographic inventory of the community identified those areas in most need as “extreme”. Additionally, the Cameron Park Risk Assessment has identified others areas as high, moderate, or low. Attributes assessed to develop this map include: building materials, roof type, fuel type or fuel model, and lot slope and aspect.



Map Prepared January, 2006

Extreme

High

Moderate

Low

Fire History

The community of Cameron Park is situated next to Highway 50 which is heavily commuted by local, state, and interstate travelers. The Highway 50 corridor is also the most densely populated area of El Dorado County. Wildfire history is much higher along the Highway 50 corridor than surrounding areas of El Dorado County in terms of numbers of fires started. Over the 40 year history of the community, numerous large vegetation fires have occurred in the immediate surrounding areas.

Given the fuels, topography, weather, development and fire history in the area, the community is vulnerable to a catastrophic wildfire. The California Department of Forestry and Fire Protection (CAL-FIRE) in cooperation with the Cameron Park Fire Department (CPFD) has implemented a comprehensive "Fire Safe" project for the community of Cameron Park to minimize the potential for costs and losses associated with a catastrophic wildfire.

View from Green Valley Road and Cameron Park Drive

Hickok Fire *September 2002*

The most recent large fire in the Cameron Park area occurred 3 miles north of the community in 2002. The Hickok Fire burned approximately 700 acres of vegetation and threatened dozens of homes in the community of Rescue before it was stopped by firefighters at Deer Valley Road.

Fortunately the Hickok fire occurred on a day when winds were light (less than 5 mph). Had this fire occurred on a day when winds were blowing from the northwest at 25 mph it most certainly would have burned into, and probably through, the community of Cameron Park.

View from Cameron Park Airport

Cameron Park Fire Safe Project

A common complaint received by the Cameron Park Fire Department from the public is about their concern for protection from a wildfire emergency. An analysis of emergency incidents in the local area supports the public perception that the greatest threat to the community may be from a destructive wildfire similar in nature to the fire that occurred recently in South Lake Tahoe, the Angora Fire, which started this past summer on June 24, 2007. The Angora Fire burned less than 5 square miles (31000 acres) and destroyed 254 homes and 75 commercial and other structures in one day.

The Cameron Park Fire Department in Cooperation with the California Department of Forestry implemented a project in the Community of Cameron Park with a long term goal of establishing a "Fire Safe" community. The enormous scope of the problem necessitated that it be approached by a coalition of public and private stakeholders that included: 1) Fire Department officials, 2) El Dorado County government and agency officials, 3) Community Services District officials, 4) utility company representatives, 4) environmental groups, 5) insurance industry representatives, 6) real estate industry representatives, 7) homeowners associations, 8) large land owners, and 9) general public.

The project is comprehensive enough to address the entire wildland-urban interface problem in the district from small strips of flammable vegetation along roadside easements, to large tracts of undeveloped brush covered lands. No timeframes were established for the completion of this project. Progress is dependent upon the cooperation and initiative of the stakeholders, and the success in securing project funding through grants or other sources. Three critical elements of the project are:

Project Elements

Planning:
Cameron Park Fire Safe Bureau
Cameron Park Fire Safe Council
Fire Safe Development Plans – PRC 4290
Comm unity Wildfire Preparedness Plan
Community Hazard and Risk Assessment

Fuel Reduction: Residential Lot Clearing Requirements – PRC 4291
Vacant Lot Clearing Requirements – H&S 14875 - 14922
El Dorado County Chipper Program
Gree n Waste Program
Vegetation Management Program
Curbsi de Landscaping

Public Education:
Volunteers in Prevention
Public Displays
Demo nstration Lots
Public Recognition
Ha zard Awareness

Planning Element Description

Cameron Park Fire Safe Bureau – The Cameron Park Fire Department has a Fire Safe Bureau to coordinate the districts' efforts towards minimizing costs and losses associated with wildfire emergencies. The Fire Safe Bureau is located at Cameron Park Fire Station 89. The Fire Safe Bureau works with the Cameron Park Fire Safe Council to implement the Cameron Park Fire Safe Project. The Fire Safe Bureau re-focuses the efforts and priorities of the fire department personnel and resources directly on the wildland-urban interface problem.

Cameron Park Fire Safe Council – A Fire Safe Council is established in the community. It is a partnership between the fire department and the community for addressing the local wildfire hazard. The Fire Safe Council is a coalition of public and private sector stakeholders including community leaders, residents, business persons, government agencies, the fire department, and other groups and associations committed to developing a "Fire Safe" community in Cameron Park. The Fire Safe Council meets every other month. One member of the Cameron Park Fire Safe Council represents the community at the El Dorado County Fire Safe Council. The active Fire Safe Council is one of the critical elements for this project's success.

Fire Safe Development Plans (PRC 4290) – A Fire Safe Plan has been prepared and submitted for project applications for new construction and development within the community. The Fire Safe Plan provides for emergency vehicle access and perimeter wildfire protection measures. Elements of the fire safe plan include standards for road and street networks, water supply standards, building construction, and fuel modification and defensible space. The Department's Fire Safe Bureau works closely with the County of El Dorado Building and Planning to accomplish fire safe projects.

Cameron Park Wildfire Preparedness Plan (CWPP) – A preplan for managing wildfire emergencies in and around the community has been developed. The preplan incorporates information developed in the Fire Safe Plan to improve chances for initial attack success in the event of a wildfire emergency. Fuel breaks, water supplies, evacuation routes, staging areas, resource needs, strategies and tactics, etc. are developed for a variety of wildfire scenarios. The pre-plan will be distributed to local firefighters for training and made available to the public for educational purposes.

Community Hazard and Risk Assessment – A hazard and risk assessment has been completed for the entire community. The hazard and risk assessment quantifies the threat to persons and property in the community from a wildfire emergency. Factors such as fuel, topography,

land use and types of building construction were considered. The hazard and risk assessment is a critical planning tool that directs the efforts of the Fire Safe Bureau.

Fuel Reduction Element Description

Residential Lot Clearing Requirements (PRC 4291) –Residents are required to establish defensible space around the structures on their lots, under the authority of Public Resource Code § 4291. PRC 4291 requires removal of flammable vegetation for a minimum of 30 feet, and up to 100 feet around structures. Fire department personnel and volunteers make initial inspections. Failure to comply may result in a citation.

Vacant Lot Clearing Requirements (H&S 14875 – 14922) – Based on the community hazard and risk assessment, vacant lots are required to remove flammable vegetation under the authority of the Fire District's weed abatement ordinance. The weed abatement ordinance was established in2010, by the Board of Directors, under the authority of Health and Safety Code § 14875. Fire Department personnel and volunteers make initial inspections. Failure to comply may result in the fire department contracting for the abatement work and a lien being filed on the property. Failure to comply may result in a citation.

Chipper Program – The Cameron Park Fire Department utilizes the El Dorado County Fire Safe Council's chipper program to support the residential lot clearing efforts. The chipper program provides a cost effective alternative and incentive for property owners to cooperate with the District's fuel reduction efforts. Chips can be scattered in place on the property owner's lot, stored in a central location for redistribution, or used as a groundcover in road easements or other areas.

Fire Resistive Plants – Ornamental trees, shrubs, and groundcovers that are fire resistive and perform well in the local soil and weather conditions have been identified. Property owners are encouraged to replace native flammable vegetation with fire resistive ornamental plants.

Public Education Element Description

Volunteers in Prevention (VIP) – The district has established a *Volunteers in Prevention* program to assist with administration of the Cameron Park Fire Safe Project and public education. The VIP program is administered by CAL-FIRE. VIP's are utilized for a variety of fire prevention activities including office support, inspections, and public education programs.

Demonstration Lots – "Demonstration Lots" have been established around the District featuring two types of fire safe landscaping. One type demonstrates how to thin and prune native vegetation (primarily oak woodland) to reduce its fire danger potential. The other type includes fire resistive ornamental plants that can be used to replace or enhance native plant species.

Public Displays – Public education materials are constantly displayed at community events attended by the Fire Department and/or the Fire Safe Council.

Web Page – The District's web page is updated to provide a complete overview of the Cameron Park Fire Safe Project.

Hazard Awareness and Prevention – Public education materials have been developed to heighten the awareness of the community towards the dangers of a wildfire emergency and to educate the public on the efforts to reduce the hazard. Materials include maps and information of the fire history in the local area; history of catastrophic wildfires in the state; methods for fuel reduction and fire resistive landscaping; methods for creating defensible space around structures; methods for preventing the ignition of a wildland fire; and/or a mock newscast of a catastrophic wildfire in the community to present the reality of the danger.

Conclusion

The community of Cameron Park is in an area where high fire danger exists. This Community Fire Safe Project offered by the Cameron Park Fire Department, in cooperation with the California Department of Forestry and Fire Protection, addresses the public's concern for fire danger. It has been endorsed by the Cameron Park Fire Safe Council. It is a plan for the continued development of a "Fire Safe" community in Cameron Park. This document is subject to review and revision in the future.

Lake Tahoe Basin and Alpine County Division
Division 6 Chief Mary Huggins
Battalion 8 Chief Kris Timberlake

LAKE TAHOE BASIN

The mission of CAL FIRE, the California Department of Forestry and Fire Protection, is to serve and safeguard the people and protect the property and resources of California. To meet this mission, the Lake Tahoe Basin is administered by two CAL FIRE units. The north shore vicinity, which includes Placer and Nevada Counties, is administered by the Nevada-Yuba-Placer Unit (NEU) headquartered in Auburn and does not have any permanent staffing within the Lake Tahoe Basin. The El Dorado County area, located on the south and west shores of Lake Tahoe is administered by the Amador-El Dorado-Sacramento-Alpine Unit (AEU). The AEU staff is located in South Lake Tahoe and includes one Division Chief (Forester II) whom also serves as Agency Representative during emergencies, and one Battalion Chief. In addition, a CAL FIRE wildland engine was staffed with two engine companies during the fire seasons of 2008-2010 under a Governor's Executive Order as detailed further below.

Since the early 1980's a CAL FIRE professional forester had been assisting non-federal landowners in the Lake Tahoe Basin with forestry advice and management assistance. In 1990, our role expanded when CAL FIRE began providing professional forestry advice and services for California Tahoe Conservancy (CTC) properties through an interagency agreement through 2010 resulting in the hiring of another permanent Registered Professional Forester and a Forestry Assistant. Today, although the interagency agreement is no longer in effect, CAL FIRE still works closely with the CTC's Urban Land Management Program on hazard fuel reduction projects and the CTC Forest Habitat Enhancement Program on fuel reduction, forest health and wildlife habitat enhancement projects in the urban interface and general forest areas.

An influx of Proposition 40 monies in January 2005 for fuel reduction, coupled with the post-Angora Fire Emergency California-Nevada Tahoe Basin Fire Commission recommendations in May 2007 has expanded CAL FIRE's role even more in the Lake Tahoe Basin.

I. PRE-ANGORA FIRE ACCOMPLISHMENTS

Fire Prevention

CAL FIRE staff located in South Lake Tahoe provided local fire departments and the Tahoe Fire Safe Council with Public Resource Code (PRC) 4291 defensible space inspection and enforcement training routinely each year since 2007 before the Angora Fire erupted on June 24, 2007. In May 2007, Governor Schwarzenegger authorized CAL FIRE to hire seasonal Firefighters throughout

the state to conduct PRC 4291 inspections. CAL FIRE personnel in the Tahoe Basin were thereby able to assist local fire departments in performing PRC 4291 inspections, performing over 500 PRC 4291 inspections between August and early December of 2007.

CAL FIRE staff also performed PRC 4290 review, as it does today, which includes pre-fire development review of all types, from single home to condominium complexes. Other duties include State Responsibility Area Fire Hazard Map review and Wildland Urban Building Standard review.

Fuels Reduction Efforts

In 2004, the legislature authorized a new CAL FIRE fuels reduction program of approximately 40 million dollars over 5 years from Proposition 40 funds. Approximately one million dollars per year have been brought into the Tahoe Basin for fuels reduction work between 2005 and 2009. The fuels reduction projects resulted in improvement and protection of watersheds and water quality at risk throughout the Sierra Nevada. The Proposition 40 monies were allocated within the Tahoe Basin in two ways. The first was through Community Assistance Grants with local fire agencies, state land management agencies, and the Nevada Fire Safe Council. The second method was through an interagency contract between the California Conservation Corp and CAL FIRE for fuels reduction work on California Tahoe Conservancy lands. Both Proposition 40 grant allocation accomplishments are detailed below.

Proposition 40 Grants Funding for Fuels Reduction FY 2004/2005-FY 2007/2008

Since the first grant cycle held spring 2005 (Fiscal Year 04/05), various entities within the Lake Tahoe Basin have applied for and were awarded Proposition 40 grant monies to perform fuels reduction work, including chipper programs, in priority areas previously identified in the Lake Tahoe Basin Community Fire Plan.. These entities include the Lake Valley Fire Protection District, Fallen Leaf Fire Community Services District, Meeks Bay Volunteer Fire Protection District, City of South Lake Tahoe Fire Department, North Tahoe Fire Protection District, Nevada Fire Safe Council, California Tahoe Conservancy, and California State Parks. In addition, CAL FIRE Proposition 40 fuel reduction monies funded a California Forest Improvement Program (CFIP) fuel reduction grant project located near Heavenly Ski Resort on private land.

CAL FIRE was granted an additional $625,000 in Proposition 40 funds to the California Conservation Corp (CCC) at Lake Tahoe to perform fuels reduction projects on California Tahoe Conservancy lands. These projects resulted in the overall treatment of 340 acres beginning in September 2005 through December 2007, located throughout Tahoe Basin in California within the wildland-urban interface (WUI). CAL FIRE professional forestry staff has continually assisted the California Tahoe Conservancy in preparing and administering fuel reduction projects within the Tahoe Basin.

2004-2005 FUNDED PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Lake Valley Fire District Chipper Program (South Shore) $45,180: Approximately 245 acres to be treated throughout the Lake Valley Fire District whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Lake Valley Fire crews.
- Lake Valley Fire District Christmas Valley 3 Fuel Break (South Shore) $43,221: Approximately 25 acres to be treated by thinning to create a community fuel break near Meyers.
- Fallen Leaf Lodge Homeowners Fuels Reduction (South Shore) $42,000: Approximately 30 acres to be treated by thinning in order to create a community fuel break on the west Shore of Fallen Leaf Lake adjacent to the lakeside community.
- Alpine County Fire Safe Council Hot Springs Road Fuels Reduction $29,000: Within 100 feet of centerline of Hot Springs Road, create a roadway defense zone and emergency ingress/egress improvement covering 30 acres by removing tree under 8 inches DBH and all brush within 20 feet of the road bed edge of Hot Springs Road. Fire Safe Council unable to complete due to lack of primary private land ownership participation.

2005-2006 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Fallen Leaf Lodge Homeowners Fuels Reduction, Project 4, Phase 1 $47,500: Approximately 14 acres to be treated by thinning in order to create a community fuel break on the west shore of Fallen Leaf Lake adjacent to the lakeside community.
- Nevada-Tahoe Fire Safe Council, Rubicon Bay Fuels Reduction Project $79,600: Approximately 20 acres to be treated by hand thinning in order to create a community fuel break and also to protect a major native fishery within the project area.
- California State Parks Grizzly Mountain Defense Zone $33,000: Approximately 8 acres to be hand thinned and both chipped and hand piled for burning within Washoe State Park immediately adjacent to a major subdivision area.
- Alpine County Public Works Bear Valley Fuel Reduction Program: $50,000. Approximately 30 acres to be treated using a masticator in order to create a community fuel break adjacent to the Bear Valley subdivision in western Alpine County.

2006-2007 FUNDED PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Lake Valley Fire Protection District Community Chipping and Defensible Space Program $50,000: Approximately 245 acres to be treated throughout the Lake Valley Fire whereby homeowners bring material

removed for defensible space purposes to the roadside chipper to be chipped by Lake Valley Fire crews.

- Fallen Leaf Lodge Homeowners Fuels Reduction $79,250: Approximately 25 acres to be treated by thinning in order to create a community fuel break on the west Shore of Fallen Leaf Lake adjacent to the lakeside community, as well as fuels reduction concurrently being performed by on USFS and California Tahoe Conservancy lands. Work is in progress.
- City of South Lake Tahoe Springwood Fuels Reduction Project (Springwood): $50,000. Approximately 30 acres to be hand thinned and both chipped and hand piled for burning within the City of South Lake Tahoe on city lands immediately adjacent to a major subdivision. Project is in planning stage.
- County of El Dorado Angora Fire Salvage: $375,000. Approximately 200 parcels affected by the Angora Fire shall be treated for burned vegetation removal. The County ended up only using $50,000 for erosion control, and turned back the remaining allocation.

2007-2008 FUNDED PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Lake Valley Fire Protection District Community Chipping and Defensible Space Program $50,000: Approximately 245 acres to be treated throughout the Lake Valley Fire whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Lake Valley Fire crews.
- Fallen Leaf Lodge Homeowners Fuels Reduction $111,250: Approximately 80 acres to be treated by thinning in order to create a community fuel break on the west Shore of Fallen Leaf Lake adjacent to the lakeside community, as well as fuels reduction concurrently being performed by on USFS and California Tahoe Conservancy lands.
- Meeks Bay Fire Protection District Chipper Program $50,000 whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Meeks Bay Fire crews.
- Markleeville-Woodfords Fuels Reduction Project $50,000: Priority areas preplanned for evacuation centers and evacuation routes were targeted which included Turtle Rock Park, Diamond Valley Elementary School and major transportation routes. Small trees and brush were masticated or removed to protect, maintain and enhance the Carson River watershed by reducing dangerous fuel loadings.

Forest Practice

Forest health is paramount to maintaining the water quality of Lake Tahoe. Efforts to prevent loss of vegetation and reduction of water quality due to catastrophic wildfire and other pathogens often precipitate landowners' decision to plan and prepare harvesting documents in the Tahoe Basin. Since the early 1980's, CAL FIRE Registered Professional Foresters have been working closely with landowners and agencies by ensuring field

recommendations regarding sound forestry practices are thoroughly discussed and recommendations are developed and implemented on non-federal lands. CAL FIRE foresters have also assisted in regulatory changes and recommendations that assist to help non-federal land owners in managing, enhancing and maintaining their timberland.

Since the mid-1990's, CAL FIRE has assisted Tahoe Basin landowners with fuels reduction efforts under the interagency ReGreen Program, which assisted landowners in removal of dead trees caused by the drought.

Fire Protection

CAL FIRE is responsible for protecting 31 million acres of State Responsibility Area (SRA) acres in California. The SRA lands are those timber and brush covered non-federal lands which are not located within a city. There are approximately 33,000 acres of SRA lands in the Lake Tahoe Basin and include the communities of Tahoe City, Tahoma, Carnelian Bay, Tahoe Vista, Kings Beach, Tahoe Pines, Homewood, Dollar Point, Meeks Bay, Rubicon Bay, Meyers, Fallen Leaf Lake, and South Lake Tahoe outside of city limits.

Through the statewide Cooperative Fire Management Agreement (CFMA), the USFS has been given the authority to act on CAL FIRE's behalf as the wildland fire response entity for State Responsibility Area (SRA) lands within the Lake Tahoe Basin. Locally driven, specific terms of this agreement are addressed in an Annual Operating Agreement between the USFS Lake Tahoe Basin Management Unit and the CAL FIRE Amador-El Dorado-Sacramento-Alpine Unit (AEU). This agreement includes, but is not limited to, information such as tactical frequencies, wildland fire response notification procedures, apparatus and their staffing levels, facilities, prescribed burning procedures, and inspection and enforcement of PRC 4291. Therefore, due to this agreement, CAL FIRE has not established any fire engine stations within Lake Tahoe Basin prior to fire season 2008. Staffing level changes for fire season 2008 through 2010 were changed due to the Governor's Executive Order and Proclamation of May 27, 2008. This Executive Order and Proclamation authorized CAL FIRE to establish two one-engine fire stations. One fire station on the south shore, and one fire station on the north shore for three consecutive fire seasons, after which the success was studied by CAL FIRE to determine if these fire stations will continue to remain staffed. Beginning Fiscal Year 2011, these two fire engine stations were placed into CAL FIRE's permanent budget by Governor Jerry Brown. These two fire engine stations are an historical first for CAL FIRE in the Lake Tahoe Basin.

Fire History, Fuel Hazards, and Ignition Information

In 2000, the Lake Tahoe Basin Watershed Assessment for the Lake Tahoe Community Wildfire Protection Plan quantified and assessed the wildfire threat to watersheds in the Tahoe Basin. Fuels analysis, ignition history, and fire behavior modeling was used to predict fire occurrence in the basin. Field surveys were conducted to collect community and project specific information. Detailed fire

behavior analysis, structural assessment, and community design assessments were conducted to rate communities. Mitigation projects were developed around hazardous community areas and were prioritized by reviewing field based hazard information, data from watershed assessments, input from the public, and input from the local fire chief. Results from the field assessment indicated that a majority of homes and structures in the Tahoe Basin lacked non-flammable building materials, fire safe construction techniques, and Public Resource Code 4291 then –required 30-foot defensible space clearance. Fire behavior analysts conducted studies on sample points located within the communities and found fire would reach the canopy of the forest eighty percent of the time. Wildfire hazards to the communities were significant due to high fuel loadings within and around communities.

Historic Fire Regime and Fuel Hazards

Prior to European settlement, fire in the Basin had return intervals varying from 5 years to 128 years throughout the Basin. However, at lower elevations where most of the Native Americans of the Washoe tribe camped and where today's communities are located, the fire return intervals were shortest. These lower elevation areas had fire return intervals averaging 5 years to 18 years around the edge of the Lake and then south to approximately the town of Meyers. Immediately above this elevation, fire return intervals averaged 9 years to 32 years. Based on fire return data, it is estimated that 689 to 2, 964 acres burned annually in the western portion of the Basin (Murray and Knopp 2000). During this pre-European time, lower elevation montane forests were characterized by large, widely spaced trees with little understory. Because frequent fires reduced surface and ladder fuels, fire intensities were low and there was little mortality of mature trees.

As Europeans settled in the Basin, the fire regime and fuels hazards changed. The frequent fires set by the Washoe were eliminated as the Native Americans were pushed out of the Basin. Between 1875 and 1895, large-scale timber harvesting resulted in clearcutting most of the old growth forests on the west shore. Large-scale harvesting continued after this but was more localized. By 1900 the forests in the Basin were now comprised of individual stands of smaller size classes (1 inch DBH to 24 inch DBH and also old growth in areas difficult to access at the time. The smaller size classes of these trees would have supported more intensive fires than the old growth stands. The high hazard fuels resulted in the largest fire ever recorded in the Basin in 1918 (1,013 acres) and the largest number of acres burned in the Basin during the decade between 1916 and 1925 (2,593 acres) (Murray and Knopp 2000).

Current Fire Regime and Fuel Hazards

Several factors have combined to significantly change the fire regime and fuel hazards in the Basin. Since the 1970's, public sentiment and management strategies increasingly emphasized the protection and preservation of natural resources. Without sources of disturbance such as fires or harvesting, forest vegetation continued to grow. As a result, there were a large number of all size classes of trees in forest stands and overstocked stand conditions that created a

ladder of flammable vegetation from the ground to the overstory canopy. In addition, since 1975, three periods of drought increased mortality in forest and riparian vegetation. As a result of the overstocked stand conditions and increased drought conditions, fuel hazards may be the highest they have been in over 100 years.

II. ANGORA FIRE

On June 24, 2007, the Angora Fire began in the North Upper Truckee area in South Lake
Tahoe, California. The fire burned out of control, threatening hundreds of residences and commercial structures, and resulted in thousands of evacuations. A total of 3,100 acres were burned and 254 homes were destroyed by this fire. El Dorado County proclaimed a local emergency June 24, 2007, and subsequently requested state and federal assistance by a separate proclamation issued the next day. In response to El Dorado County's request, California Governor Arnold Schwarzenegger proclaimed a State of Emergency for this event on June 25, 2007. The Angora Fire was fully contained on July 2, 2007. The Angora Fire has underscored the need for a comprehensive review of fire prevention and fuels management practices in the Lake Tahoe Basin, and on July 5, 2007, Nevada Governor Jim Gibbons publicly invited California Governor Arnold Schwarzenegger to join him in establishing a joint fire commission to review fuels management of forests in the Tahoe Basin as well as the policies and procedures of the various agencies that govern fuels management within the Basin. The States of California and Nevada are committed to reducing the threat of wildfires while preserving the unique and treasured environment of the Tahoe region. California and Nevada hereby agreed to create the California-Nevada Tahoe Basin Fire Commission.

The Commission was formed in August 2007 and met for eight months. The first two meetings were dedicated to listening to fire responders, agency directors and staff, technical experts, and, most of all, the public and residents of the Lake Tahoe Basin, as they explained their problems, concerns, and hopes in the wake of the disaster. The Commission spent a little time on analyzing the Angora Fire itself, and much more on the efforts that had gone into preparing for the inevitable wildfires, wherever and whenever they might occur in the Basin. At those first meetings, the Commission also considered at length how the elements of environmental protection interplay with public safety. Three primary areas of discussion emerged, and committees were created to further explore the multitude of topics in each of these areas: Wildland Fuels Management, Community Fire Safety, and Legislation and Funding Policies.

The commissioners all agreed that a universal goal was to have the most open, participative, and collaborative process possible – the Commission felt strongly that any member of the public should have a chance to have input. Toward that end the Commission developed an approach that invited any individual or organization to submit a 'Finding and Recommendations' suggestion that would be considered by one of the three committees, and then brought to the

Commission for action. Altogether, 120 proposed findings and nearly 200 recommendations were submitted by a variety of experts, stakeholders, organizations, and individuals, including Commissioners themselves. They were all reviewed and analyzed, and many were incorporated into the Commission's report.

The Commission spent much of its time listening to the Lake Tahoe community at its
meetings. The Commissioners did not all agree on every proposed solution, but consensus emerged on most of the pressing fire safety and environmental issues impacting the Tahoe Basin. All agreed that Lake Tahoe continues to be at risk from catastrophic wildfire and everyone recognizes that a large-scale, destructive forest fire is, in itself, a significant threat to the clarity of Lake Tahoe and the Basin's environment.
Catastrophic fire causes deleterious impacts to the surrounding forests, the crystal
blue clarity of the Lake, the economic livelihood of the Basin, and the people that live
or visit there. Recommendations were submitted by a variety of experts, stakeholders, organizations, and individuals, including Commissioners themselves. They were all reviewed and analyzed, and many were incorporated into the Commission's report.

Over the course of eight months' deliberations, the California-Nevada Tahoe Basin
Fire Commission heard from many Basin residents, fire professionals, land managers, environmental regulators, scientists, and others. By February 2008, more than 50 individuals and organizations had submitted 120 proposed findings ("F") and even more associated recommendations ("R") to the Commission. About a third of these were developed by members of the Commission, while another third were developed by implementing and regulatory agencies at all levels of government, often working through interagency working groups. The rest were developed by interested members of the public including representatives of the conservation community, homeowners, and forestry-interest groups. Some of the proposed findings and recommendations were adopted as submitted or with modifications requested by Commissioners. More often,
they were edited to combine similar ideas, eliminate redundancies, or reconcile conflicting recommendations. Ultimately, 90 recommendations were formulated by the Commission to be forwarded to the Governors of California and Nevada.

The Commission's findings and recommendations are presented in six categories that address short- and long term needs, policy changes, education, funding, governmental structures, and environmental practices related to Lake Tahoe's vulnerability to wildfire. The report recommends some change from past practices, and change can be challenging for some. But the Commission's challenge from the Governors was to take a treasured jewel, two states, a diverse community, strongly held beliefs, the work of many regulatory agencies,

and the input of a concerned public to create a set of recommendations to reduce the risk of wildfire to Lake Tahoe.

The Commissioners unanimously recommended that the Governors issue Emergency
Declarations regarding the extreme threat that catastrophic fire poses to the Basin, its residents, and the unique natural resource that is Lake Tahoe (R 10, 12). The Commission's recommendations are organized into six categories (below) which together
constitute a plan for reducing the Basin's vulnerability to catastrophic wildfire and the impacts such fires would have on the Lake's fragile environment.

CATEGORY 1: Environmental Protection

The difference between the threat of catastrophic fire to the Lake Tahoe Basin and the threat of catastrophic fire to other areas of California and Nevada is the presence of Lake Tahoe itself. This unique national treasure is one of the few areas in America that warranted creation by two neighboring states and Congress of a planning authority to oversee its protection. For over thirty years, environmental matters within the Lake Tahoe Basin have been determined by the Tahoe Regional Planning Agency and a myriad of federal and state agencies. This unique system of regulatory oversight has resulted in the imposition of multiple layers of requirements that are not found in other areas of the two States. The Commission worked diligently to reconcile these important protections of the Basin's unique natural resources with commonly accepted fire prevention and suppression practices in order to find a balance that reflected the values of life, property, and environmental protection. To this end, the Commission's recommendations address the need for:

- All agencies to make restoration of the Basin's forests to a more natural and fire-resistant condition as a common and primary goal (R 2).
- Easier implementation of fuels reduction project streamlining permitting procedures
and monitoring requirements (R 17, 72).
- TRPA and the LRWQCB to review their procedures and requirements and, where possible without jeopardizing reasonable environmental practices, to modify their requirements to facilitate needed fuels reduction programs (R 16, 17, 18, 19, 35, 52, 53, 69, 73).

CATEGORY 2: Issues of Governance

The Commission adopted a number of recommendations aimed at making the TRPA more
responsive to concerns regarding the threat posed by catastrophic fire to residents of the Basin

as well as to the Lake. Also included are recommendations addressing other agencies' practices and activities relating to the need to facilitate fuels removal projects in the Lake Tahoe Basin. Recommendations are forwarded regarding the need to:

• Bring fire prevention perspectives to the TRPA (F 9; R 20) and have TRPA review its present requirements in light of their impacts on the risk of catastrophic fire (R 18, 19).
• Impose enhanced reporting obligations of the TRPA to the States of California and Nevada regarding such matters (R 21, 22, 23).
• Develop a Memoranda of Understanding (MOU) between TRPA and the LRWQCB to facilitate procedures relating to fuels reduction projects (F 11, 12; R 26).
• Make environmental standards relating to fuel removal projects uniform throughout the Basin (R17).
• Support the Tahoe Basin Fire Chief's "Nine Point Letter" to TRPA (F 8) and the agreements reached to resolve those concerns (R 19).
• Extend the Commission authority so that it may monitor implementation of the recommendations that are accepted by the Governors (F 6; R 14, 22).

CATEGORY 3: Community and Homeowner Fire Protection

A number of the Commission's recommendations recognize that fire prevention is also a duty of every property owner and must be aggressively addressed by private property owners within the Basin. Recommendations are therefore presented to:

• Clarify regulatory requirements relating the removal of pine needles from areas adjacent to residences (R 37)
• Require the implementation of defensible space around all structures (R 37,44)
• Address the need to retrofit all existing structures in the Basin with ignition resistant materials (R 45, 46)
• Promote educational programs regarding defensible space and fire safe practices (R 38, 39, 41)
• Implement the "Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy - 10 Year Plan" that builds upon community wildfire prevention plans affecting every community within the Basin (R15, 54, 55)

CATEGORY 4: Forest and Fuels Management

The key to addressing the buildup of fuels within the forests of the Basin is to remove the excess fuels as quickly as possible and to then maintain the forests according to sound forest management practices. The Commission developed a number of recommendations addressing this over-arching problem including:

• Implementation of the "Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy - 10 Year Plan" with regard to the Basin's forests (R 15)
• The need to facilitate the use of hand-thinning and low-impact equipment and allow pile burning in sensitive stream environment zones and on steep slopes (R 17, 68, 70)

• The need to allow use of readily available mechanized equipment in such areas in order to accomplish fuels reduction projects (F 32; R 17, 68)
• The need to facilitate forest thinning practices and biomass processing as means to reduce the intensity of future wildfires and resulting pollution to air and water resources (F 21, R 56)
• The need to quickly clean up and reforest areas burned by the Angora fire (F 19; R 50) Executive Summary

CATEGORY 5: Fire Suppression
With respect to all matters within the Tahoe Basin, the Commissioned determined that protection of life, property, and the environment be served in that order of priority
(R 78, 89). In that regard, the Commission has recommended a number of actions to:
• Enhance fire suppression resources within the Basin including revision of the "Balance of Acres" agreement between the State of California and federal authorities to assure that the Basin receives 24/7 fire protection services at a level equal to other state responsibility areas in California (F 37; R10, 75)
• Re-introduce CAL FIRE's presence within the Basin (R 76)
• Equip the C-130's of the Nevada Air National Guard with modular airborne fire fighting systems (R 78)
• Make fuels reduction projects in areas within and adjacent to the Basin's communities the first priority by all agencies (R 69, 89)

CATEGORY 6: Funding
Present funding levels for fire prevention, planning, and suppression activities in the Basin were found by the Commission to be inadequate and, in some cases, derived from sources that are not consistently reliable The Commission also recognized the need for private property owners to participate in the costs of avoiding catastrophic wildfire. Consequently, the Commission has attempted to quantify immediate funding needs as well as funding needed on a long term basis needed from all stakeholders. To assist in identifying these needs and serve as a foundation for future discussions, the Commission adopted recommendations:
• Addressing the need to stabilize revenues from existing funding sources and to develop additional funding sources necessary for the implementation of the Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10 Year Plan (R 84, 87, 88).
• Encouraging the Governors to join with the States' Congressional delegations to develop permanent federal sources of funding for emergency fuels reduction programs and forest restoration efforts in the Lake Tahoe Basin (R 82, 83).
Additional information regarding estimates of specific funding needs is set forth in Appendix E, "Costs Summary." For the complete language of any of the Commission's recommendations, please see the Recommendations section of this Emergency Report. For information regarding the background and rationale for the recommendations, please see the Findings section.

III. POST-ANGORA FIRE ACCOMPLISHMENTS

After the Angora Fire, cleanup up the destroyed homes sites and tree removal was the first priority to getting affected citizens back into their neighborhood to prepare for rebuilding. CAL FIRE, in cooperation with the California Environmental Protection Agency (CAL EPA) and El Dorado County, were very involved in the hazardous vegetation removal adjacent to homes, home sites, and roadways. CAL FIRE also awarded $375,000 of Proposition 40 grant monies to the County of El Dorado to assist with the cost of the cleanup effort. Approximately 200 parcels affected by the Angora Fire were treated for burned vegetation removal. The entire clean-up and tree removal process took six weeks.

After the Angora Fire, CAL FIRE participated heavily in the aforementioned Emergency California-Nevada Tahoe Basin Fire Commission hearings. After the commission report was accepted, leaders of resource management, fire, and regulatory agencies in California and Nevada within the Tahoe Basin formed the Multiagency Coordination Group, or MAC. The MAC then formed the Tahoe Fire and Fuels Team (TFFT), which implements fuel reduction projects and answers to the MAC regarding all fuel reduction and fire prevention projects and related issues and media outreach in the Lake Tahoe Basin. CAL FIRE is an Agency Representative on the MAC and also has two technical specialists (Registered Professional Forester and Battalion Chief) on the Tahoe Fire and Fuels Team.

Post-Angora Fire work completed in Spring 2009 included participation in lengthy hearings and drafting of correspondence by CAL FIRE and other Tahoe Basin fire and resource management agencies, in response to the Lahontan Regional Water Quality Control Board's Memorandum of Understanding with the Tahoe Regional Planning Agency regarding fuel reduction permit streamlining and the Lahontan Regional Water Quality Control Board's revised Timber Waiver for fuel reduction work. Both the Lahontan-Tahoe Regional Planning Agency MOU and the Lahontan Timber Waiver were highly controversial. Each document was also part of the Emergency California-Nevada Tahoe Basin Fire Commission Report regarding the need for permit streamlining and reduction of onerous regulatory requirements to fuel reduction treatments.

Fire Suppression and Emergency Response
The AEU CAL FIRE engine stationed in the Tahoe Basin was dispatched to a total of 136 incidents in 2008 and **to a total of 122 incidents in 2009.** These combined total of 258 emergencies include vegetation fires, structure fires, vehicle fires, downed aircraft fire, debris fires, medical aids, traffic collisions, water rescue, missing hiker search and rescue, assisting with firework and other public events, hazardous materials emergencies, and smoke checks.

With respect to all matters within the Tahoe Basin, the Commission determined that protection of life, property, and the environment be served in that order of

priority (Recommendations 78 and 89), In that regard, the Commission recommended a number of actions to:

- Enhance fire suppression resources within the Basin including revision of the "Balance of Acres" agreement between the State of California and federal authorities to assure that the Basin receives 24/7 fire protection services at a level equal to other state responsibility areas in California (Finding 37; Recommendations 10 and 75)
- Re-introduce CAL FIRE's presence within the Basin (Recommendation 76)
- Make fuels reduction projects in areas within and adjacent to the Basin's communities the first priority by all agencies (Recommendations 69 and 89)

The Governor's Proclamation (Recommendation 75) mandated that CAL FIRE "secure and deploy additional resources…to protect the safety of persons and property from wildfires within the counties of Placer and El Dorado during the periods of elevated fire risk."

To meet the Commission's recommendation, CAL FIRE's Director authorized one CAL FIRE engine be stationed at the south end of Lake Tahoe and one CAL FIRE engine to be stationed on the north shore. Both of these engines were staffed with a Fire Captain and three firefighters. In addition, one extra firefighter for each engine company was provided through a separate Governor's Executive Order for the purpose of performing Public Resource Code (PRC) 4291 defensible space inspections. These two staffed fire engines were brought back for the 2009 and 2010 fire seasons.

The presence of two CAL FIRE engine companies plus two additional PRC 4291 inspectors authorized by the Governor's Proclamation and Executive Order allowed CAL FIRE to meet many of the Fire Commission's recommendations. Without the Proclamation and Executive Orders, CAL FIRE could not fiscally supplement suppression resources in the Lake Tahoe Basin, nor perform fuel reduction and PRC 4291 defensible space inspections.

All wildland fires within the basin in 2008 were kept to less than 2 acres in size for fire season 2008. All wildland fires within the basin were kept to less than 1/3 acre in size for fire season 2009. During the five-week Northern California lightning fire siege of June and July 2008, northern California experienced significant drawdown of all Federal, State, and Local wildland firefighting resources. Within the Tahoe Basin, federal and local government fire resources were also significantly reduced. The two CAL FIRE engines maintained continuous station coverage within the Tahoe Basin throughout that five week lightning period, providing a significant increase in local firefighting capabilities during the drawdown. In addition to wildland and structure fire responses, CAL FIRE also provided substantial "all-risk" assistance to local government fire departments including but not limited to mutual aid on medical aids, traffic collisions, search and rescue, and hazardous materials incidents.

Specific terms of the Cooperative Fire Management Agreement are addressed in an Annual Operating Agreement for each area of the state. Upon recommendation of the Commission, the Lake Tahoe Basin is now covered by an Annual Operating Plan that includes CAL FIRE, Carson Bureau of Land Management, Humboldt Toiyabe National Forest, Tahoe National Forest, and El Dorado National Forests, and the Nevada Division of Forestry. The agreement addresses, but is not limited to, information such as tactical frequencies, closest resource, wildland fire response notification procedures, fire apparatus and their staffing levels, facilities, prescribed burning procedures, and inspection and enforcement of Public Resource Code 4291 (defensible space). This new plan is more streamlined and consistent the prior individual operating plans

Fire Prevention

The AEU CAL FIRE engine companies assigned to the Tahoe Basin as a result of the Governor's Proclamation conducted **947 defensible space inspections** from June to November 2008, **870 defensible space inspections** from May to November 2009, and **525 defensible space inspections** from June to October 2010. The emphasis during 2008, the first year of inspections, was placed on public education of defensible space requirements with the goal of enforcing those requirements beginning in 2009. The AEU Tahoe staff had twelve PRC 4291 enforcement cases as of the end of November 2009. The AEU Division Chief filed eight PRC 4291 enforcement cases in El Dorado County Superior Court post-fire season 2010. Of these eight cases, two became compliant prior to a court hearing. The remaining six cases were adjudicated in favor of CAL FIRE. A considerable benefit to the 2010 AEU inspection staff was the authorization of a Limited-Term (LT) Forestry Assistant II. This position was filled at the Forestry Aide classification due to lack of available LT Forestry Assistant II's, The Forestry Aide performed inspections, entered all Tahoe inspections into the Tahoe Regional Planning Agency database utilized by all Basin fire departments, reported all inspections to CAL FIRE Unit Prevention Bureau, coordinated inspections for both engine company shifts, provided pre-packaged map and inspection packets for each shift, and handled all inspection-related telephone calls and certified return letter mailings. This position was essential to the success of the AEU Tahoe inspection and enforcement program. With a shift from education to enforcement in 2009 and 2010, and relatively few Public Officers employed by Local Government fire districts, continued CAL FIRE presence in the Basin will be necessary to ensure that California's Lake Tahoe homeowners comply with the regulations of PRC 4291.

A number of the Commission's recommendations recognize that fire prevention is also a duty of every property owner and must be aggressively addressed by private property owners within the Basin. Recommendations were therefore presented to:

- Clarify regulatory requirements relating the removal of pine needles from areas adjacent to residences (R 37)

- Require the implementation of defensible space around all structures (R 37,44)
- Promote educational programs regarding defensible space and fire safe practices (Recommendations 38, 39, 41)

The Emergency California-Nevada Tahoe Basin Fire Commission Report clearly identified the need for increased defensible space property inspections in the Tahoe Basin and recommended vigorous enforcement of Public Resources Code 4291 in California. Local Government fire districts have long sought CAL FIRE's participation in the administration of defensible space regulations on State Responsibility Area (non-federal lands) within the Tahoe Basin.

Fuel Reduction and Vegetation Management Program

CAL FIRE personnel performed prescribed burning and pile burning projects with state and local government agencies**.** In 2008 and 2009 , the two Basin CAL FIRE engines assisted California State Parks at Sugar Pine Point and Bliss State Parks with prescribed underburning and pile burning, assisted Lake Valley Fire Protection District with pile burning on California Tahoe Conservancy lands, constructed and burned approximately 50 hand piles as part of the Carnelian Canyon Vegetation Management Plan on California Tahoe Conservancy land, and in coordination with North Tahoe Fire Protection District burned approximately 300 hand piles as part of the Chinquapin Vegetation Management Plan. In 2009 the two Basin CAL FIRE engines also assisted the USFS with pile burning within the Meeks Bat Fire Protection District

Ignition Risk

The Lake Tahoe Basin has one of the highest ignition rates in the Sierra Nevada. Data from the USFS Lake Tahoe Basin Management Unit (LTBMU) from 1973-1996 were used to describe ignition risks. In the planning area, the highest occurrence of ignitions (number of ignitions per 1,000 acres) occurs at Brockway, from Kings Beach to Tahoe Vista, Dollar Point, Camp Richardson, and around the City of South Lake Tahoe. The lowest occurrence of ignitions occurred at Homewood, Meeks Bay and D.L. Bliss Sate Park.

Ignition Data -2007 though 2009

Below are charts from the United States Forest Service Lake Tahoe Basin Management Unit for all fires. State Responsibility Area fires are indicated by Land Status 2 in the following charts for fire seasons 2007-2009. The State Responsibility Fires in El Dorado County are **Bold** highlighted. Except for the 2007 Angora and Washoe Fires, all fires are size class A, stopped at 0.3 acres or less.

Date	Incident Name	Class	Acres	State	Land Status	Stat Cause
24-May-07	Keller	A	0.10	CA	1	1
31-May-07	Kingsbury	B	0.50	NV	1	9
31-May-07	267	A	0.25	CA	1	9
1-Jun-07	Zephyr	A	0.25	NV	1	1
2-Jun-07	Kiva	A	0.25	CA	1	9
4-Jun-07	Bay	A	0.25	CA	2	5
5-Jun-07	Fiber	A	0.10	CA	1	4
14-Jun-07	Santa Fe	A	0.10	CA	1	4
16-Jun-07	Beaver	A	0.10	CA	1	4
18-Jun-07	Bear	A	0.10	CA	1	9
23-Jun-07	Rubicon	A	0.10	CA	1	4
23-Jun-07	College	A	0.10	CA	1	3
24-Jun-07	Angora	F	3100.00	CA	1	4
26-Jun-07	Campsite 1	A	0.10	CA	1	4
27-Jun-07	Kingswood	A	0.25	CA	2	4
30-Jun-07	Skunk	A	0.10	NV	1	4
30-Jun-07	Heavenly	A	0.25	CA	1	9
5-Jul-07	**Edgewater**	**A**	**0.10**	**CA**	**2**	**4**
6-Jul-07	Bunker	A	0.10	CA	2	9
11-Jul-	Lost	A	0.10	CA	1	1

07						
15-Jul-07	Triangle	A	0.10	CA	1	1
18-Jul-07	Meeks Bay	A	0.10	CA	1	9
22-Jul-07	**Boat Camp**	**A**	**0.10**	**CA**	**2**	**4**
30-Jul-07	Montreal	A	0.25	CA	1	3
31-Jul-07	Forest	A	0.10	NV	1	4
5-Aug-07	Barker	A	0.10	CA	1	4
5-Aug-07	Lookout	A	0.10	CA	1	4
5-Aug-07	**Airport**	**A**	**0.10**	**CA**	**2**	**9**
9-Aug-07	**Eagle**	**A**	**0.10**	**CA**	**2**	**4**
10-Aug-07	Lake	A	0.10	CA	1	9
11-Aug-07	Beaver 2	A	0.10	CA	1	4
12-Aug-07	Blackwood	A	0.10	CA	1	4
12-Aug-07	**Sugar**	**A**	**0.10**	**CA**	**2**	**4**
15-Aug-07	Granite	A	0.10	CA	1	4
17-Aug-07	West	A	0.10	CA	2	9
17-Aug-07	Oneidas	B	0.25	CA	1	9
18-Aug-07	Player	A	0.10	CA	1	7
18-Aug-07	Washoe	C	19.50	CA	2	9
26-Aug-07	Meiss	B	0.25	CA	1	1
2-Sep-07	Echo	A	0.10	CA	1	4
2-Sep-07	**Mule Deer**	**A**	**0.10**	**CA**	**2**	**9**
2-Sep-07	Bear 2	A	0.10	CA	1	9
5-Sep-	Velma	A	0.10	CA	1	1

07						
5-Sep-07	Suzy	A	0.10	CA	1	4
7-Sep-07	Saddle	A	0.10	CA	2	9
8-Sep-07	Beaver 3	A	0.10	CA	1	4
12-Sep-07	Tamarack	A	0.10	CA	1	4
13-Sep-07	Gilmore	A	0.10	CA	1	4
14-Sep-07	Kiva 2	A	0.10	CA	1	9
14-Sep-07	Skyline	A	0.10	CA	1	9
25-Sep-07	**Celio**	**A**	**0.10**	**CA**	**2**	**4**
9-Oct-07	Ward	A	0.10	CA	1	4
13-Oct-07	Sweetwater	A	0.10	CA	2	5
29-Oct-07	Beacon	A	0.10	CA	1	1
30-Oct-07	Barker 2	A	0.10	CA	1	1
2-Nov-07	Blackwood 2	A	0.10	CA	1	1
7-Nov-07	Fallen	A	0.10	CA	1	4
Total Acres			**3126.75**			

2008 TMU USFS IGNITION DATA

TMU Fire No.	Incident No.	Date	Incident Name	Class	Acres	Land Status	Stat Cause
1	7594	25-Apr-	Pope	A	0.10	1	4

		08					
2	7651	25-Apr-08	Bristle	A	0.10	1	4
3	**8554**	**9-May-08**	**Winnemucca**	**A**	**0.10**	**2**	**7**
4	9438	22-May-08	Meadow	A	0.10	1	7
5	10824	9-Jun-08	Stump	A	0.10	2	5
6	10896	10-Jun-08	Lake	A	0.10	1	9
7	10989	11-Jun-08	Cave	A	0.10	2	9
8	11373	16-Jun-08	Silver	A	0.10	1	2
9	12514	2-Jul-08	Staging	A	0.10	1	4
10	12697	4-Jul-08	Log	A	0.10	1	4
11	**13059**	**4-Jul-08**	**Bank**	**A**	**0.10**	**2**	**4**
12	13157	9-Jul-08	High	A	0.10	1	7
13	13469	14-Jul-08	Powerline	A	0.10	1	4
14	14231	24-Jul-08	Donner	A	0.10	2	9
15	14336	25-Jul-08	Lakewood	A	0.10	2	9
16	14641	29-Jul-08	Grass	B	0.30	1	4
17	14688	30-Jul-08	Cheshire	A	0.10	2	9
18	**14772**	**31-Jul-08**	**Celio**	**A**	**0.10**	**2**	**9**
19	**17880**	**1-Aug-08**	**Fallen**	**A**	**0.10**	**2**	**9**
20	14930	2-Aug-08	Beaver	A	0.10	1	4
21	15024	3-Aug-08	Gilmore	A	0.10	1	4
22	15469	9-Aug-08	Beaver 2	A	0.10	1	4
23	15563	10-Aug-08	Tumbleweed	A	0.10	1	8
24	15978	15-Aug-08	Chimney	A	0.10	1	9

25	16059	16-Aug-08	National	A	0.10	2	9
26	16523	16-Aug-08	Hell	A	0.10	1	4
27	16547	23-Aug-08	Luther	A	0.10	1	4
28	**16618**	**24-Aug-08**	**Bliss**	**A**	**0.10**	**2**	**9**
29	**16636**	**24-Aug-08**	**Eagle**	**A**	**0.10**	**2**	**4**
30	16983	29-Aug-08	Cathederal	A	0.10	1	4
31	17154	31-Aug-08	Stanford	A	0.10	1	9
32	17281	1-Sep-08	Old	A	0.10	2	9
33	17324	2-Sep-08	Fairview	A	0.10	1	4
34	**17416**	**3-Sep-08**	**Lee**	**A**	**0.10**	**2**	**9**
35	17790	9-Sep-08	64	A	0.10	1	9
36	17870	10-Sep-08	Park	A	0.10	2	9
37	18003	8-Aug-08	Crags	A	0.10	1	2
38	**18113**	**13-Sep-08**	**Sugar**	**A**	**0.10**	**2**	**4**
39	19204	29-Sep-08	Zimba	A	0.10	2	9
40	20070	12-Oct-08	Chapel	A	0.10	2	9
41	20048	18-Oct-08	Taylor	A	0.10	1	4
42	**20449**	**19-Oct-08**	**Memory**	**A**	**0.10**	**2**	**9**
43	20710	22-Oct-08	Watson	A	0.10	1	4
44	**21004**	**26-Oct-08**	**Shawnee**	**A**	**0.10**	**2**	**5**
45					**4.60**		

2008 IGNITION SUMMARY

CAUSE		COUNT
1	Lightning: 0	0
2	Equipment: 2	2
3	Smoking: 0	0
4	Campfire: 18	18
5	Debris burning: 2	2
7	Arson: 3	3
8	Children: 1	1
9	Miscellaneous: 18	18
	TOTAL	**44**

USFS	OTHER
24	20

2009 TMU USFS IGNITION DATA

TMU Fire No.	Incident No.	Date	Incident Name	Class	Acres	Land Status 2=SRA	Stat Cause
1	**CA-TMU-009436**	**18-May**	**MEMORY**		**0.00**	**2**	**9**
2	CA-TMU-009570	20-May	CABIN		0.10	1	9
3	**CA-TMU-009666**	**21-May**	**CASCADE**		**0.10**	**2**	**5**
4	CA-TMU-010137	26-May	DONNA		0.10	1	4
5	CA-TMU-012181	22-Jun	POPE		0.10	1	9
6	CA-TMU-012584	27-Jun	WATSON		0.10	1	4

7	CA-TMU-012613	27-Jun	LEAF		0.10	1	9
8	CA-TMU-012653	28-Jun	ROCK		0.10	1	4
9	CA-TMU-012663	28-Jun	LAKEVIEW		0.10	1	4
10	CA-TMU-013096	3-Jul	BLACKWOOD		0.10	1	9
11	CA-TMU-013109	3-Jul	WATSON 2		0.10	1	4
12	CA-TMU-013197	4-Jul	BEAVER		0.10	1	4
13	CA-TMU-013217	4-Jul	MONTREAL		0.10	1	9
14	CA-TMU-013295	5-Jul	TIN CAN		0.10	1	4
15	CA-TMU-013505	5-Jul	VISTA		0.10	2	4
16	CA-TMU-013330	5-Jul	BLACKWOOD 2		0.10	1	9
17	CA-TMU-013751	11-Jul	TRASH		0.10	1	4
18	CA-TMU-013962	13-Jul	MCFAUL		0.10	1	9
19	CA-TMU-014020	14-Jul	LILY		0.10	1	4
20	CA-TMU-014106	15-Jul	TAHOE		0.10	2	4
21	CA-TMU-014129	15-Jul	COMMONWEALTH		0.10	2	9
22	CA-TMU-014218	16-Jul	MEEKS		0.10	1	9
23	CA-TMU-014224	16-Jul	LOOP		0.20	1	9
24	CA-TMU-014323	17-Jul	RIVER		0.10	1	9
25	CA-TMU-014612	20-Jul	SHERYL		0.10	1	3
26	CA-TMU-014902	24-Jul	SHELLEY		0.10	1	4
27	CA-TMU-014974	25-Jul	LUTHER		0.10	1	4
28	CA-TMU-015050	26-Jul	NORTH		0.10	1	4
29	CA-TMU-015184	27-Jul	FALLEN		0.50	1	4
30	CA-TMU-	27-Jul	CAMP		0.10	1	9

	015204						
31	CA-TMU-015477	31-Jul	BEAVER 2		0.10	1	4
32	CA-TMU-015602	1-Aug	JACOBSON		0.10	1	4
33	CA-TMU-015649	1-Aug	PIONEER		0.10	1	9
34	CA-TMU-015693	2-Aug	DIAMOND		0.10	1	4
35	CA-TMU-015705	2-Aug	GRAVEL		0.10	1	4
36	CA-TMU-015703	2-Aug	SPRING CREEK		0.10	1	4
37	**CA-TMU-015845**	**4-Aug**	**PLAYER**		**0.10**	**2**	**9**
38	CA-TMU-016122	7-Aug	NORTH 2		0.10	2	4
39	CA-TMU-016755	16-Aug	BENCH		0.10	1	4
40	CA-TMU-016761	16-Aug	HOMER		0.10	1	4
41	CA-TMU-016875	17-Aug	TAMARACK		0.10	1	4
42	CA-TMU-017509	20-Aug	FIBER		0.10	1	3
43	CA-TMU-017288	23-Aug	SPOON		0.25	1	4
44	CA-TMU-017343	24-Aug	LAKE		0.10	1	4
45	CA-TMU-017473	25-Aug	SECRET		0.20	1	7
46	CA-TMU-017834	30-Aug	NORTH 3		0.10	1	4
47	CA-TMU-017879	5-Sep	HIDDEN		0.10	1	4
48	CA-TMU-018270	5-Sep	OLD		0.10	1	9
49	CA-TMU-18567	8-Sep	KAHLE		0.10	1	4
50	**CA-TMU-18585**	**8-Sep**	**KEYS**		**1.00**	**2**	**7**
51	**CA-TMU-18683**	**9-Sep**	**TRUCKEE**		**0.10**	**2**	**4**
52	**CA-TMU-019351**	**18-Sep**	**SHAWNEE**		**0.10**	**2**	**4**
53	CA-TMU-020068	27-Sep	DARDANELLE		0.10	1	4

54	**CA-TMU-020194**	**29-Sep**	**VANSICKLE**		**0.30**	**2**	**4**
55	CA-TMU-020483	3-Oct	WEST		0.10	2	9
56	CA-TMU-022641	31-Oct	CLUB		0.10	1	4
57	**CA-TMU-023270**	**8-Nov**	**MUSHOGEE**		**0.10**	**2**	**7**
58	CA-TMU-023425	11-Nov	MCKINNEY		0.10	1	7

7.55

2009 TMU USFS IGNITION SUMMARY

CAUSE	Chart label	COUNT
1	Lightning: 0	0
2	Equipment: 0	0
3	Smoking: 2	2
4	Campfire: 34	34
5	Debris burning: 1	1
7	Arson: 4	4
8	Children: 0	0
9	Miscellaneous: 17	17
	TOTAL	**58**

USFS	STATE/LOCAL
45	13

7.55 ACRES BURNED

2010 TMU USFS IGNITION DATA

TMU Fire No	Incident No.	Date	Incident Name	Acres	Land Status	Stat Cause
1	7056	25-Apr	AIRPORT	0.1	1	9
2	10271	11-Jun	JAMESON	0.1	2	3

CAUSE KEY	
1	Lightning

3	10352	12-Jun	MCKINNEY	0.1	1	9
4	10406	13-Jun	REGENCY	0.2	1	4
5	10538	15-Jun	FAIRWAY	0.1	2	7
6	10796	20-Jun	DEVERON	0.1	1	9
7	10860	20-Jun	REGENCY 2	0.1	1	4
8	10937	21-Jun	REGENCY 3	0.1	1	4
9	11334	26-Jun	BEAVER	0.1	1	4
10	11415	27-Jun	KINGS	0.1	1	4
11	11661	30-Jun	ELKS	0.1	1	3
12	12029	4-Jul	BIG	0.1	1	4
13	12218	5-Jul	TAHOE WOODS	0.1	1	9
14	12396	8-Jul	BENJAMIN	0.1	1	9
15	12839	13-Jul	NORMUK	0.1	2	5
16	12895	14-Jul	HORN	0.01	1	4
17	13051	16-Jul	LAKE	0.1	1	4
18	13138	17-Jul	BEAVER STREET	0.1	1	5
19	13308	19-Jul	TERRACE	0.2	2	2
20	13381	20-Jul	MONTREAL	0.1	2	9
21	13616	23-Jul	VALLEY	0.1	1	4
22	13637	23-Jul	SANTA	0.1	2	1
23	13691	24-Jul	BLACKWOOD	0.1	2	5
24	13793	25-Jul	BLACKWOOD CANYON	0.1	1	4
25	13827	26-Jul	GENOA	1.6	1	1
26	13843	25-Jul	PEAK	0.25	1	1
27	13969	27-Jul	TREE	0.1	1	1
28	14037	28-Jul	SAWMILL	0.1	2	2
29	14270	31-Jul	KASPIAN	0.1	1	9
30	14326	31-Jul	LAKE 2	0.2	1	9
31	14476	2-Aug	CASCADE	0.2	1	9
32	14661	5-Aug	SNOW	0.1	2	3
33	14771	7-Aug	LOST	0.25	1	1
34	14795	7-Aug	BEAVER 2	0.1	1	4
35	14799	7-Aug	STREAM	0.1	1	4
36	14893	8-Aug	WATSON	0.1	1	4
37	14861	8-Aug	BAYVIEW	0.1	1	4
39	15213	12-Aug	GILMORE	0.1	1	1
40	15557	16-Aug	VIEW	0.2	1	4
41	15700	18-Aug	PIONEER	0.1	2	3
42	15813	19-Aug	NINTH	0.1	2	9
43	15857	20-Aug	SECRET	0.25	1	7
44	16040	22-Aug	HANK	0.1	2	9
45	16352	26-Aug	PIONEER 2	0.1	2	3
46	16359	27-Aug	ETOH	0.1	1	4
47	16389	27-Aug	MEADOW	0.1	1	4

2	Equipment
3	Smoking
4	Campfire
5	Debris burning
7	Arson
8	Children
9	Miscellaneous

48	16548	29-Aug	RIM	0.1	1	4
49	16623	30-Aug	PINE DROP	0.2	1	3
50	16847	3-Sep	DARDANELLES	0.1	1	1
51	17014	4-Sep	PATH	0.1	2	9
52	17634	13-Sep	HEAVENLY	0.4	1	4
53	18746	25-Sep	KING	0.1	1	4
54	18660	27-Sep	SNOWFLAKE	0.1	2	2
55	18995	2-Oct	FIRST CHAIR	0.1	1	1
56	19248	6-Oct	MEADOW	0.1	1	1
57	19234	6-Oct	TOADS	0.1	1	1
58	19248	6-Oct	FOUNTAIN	0.1	2	1
59	19862	15-Oct	WASHOE	0.1	2	7
60	21334	6-Nov	MEADOWVALE	0.1	2	4
83	15203	12-Aug	TALLAC	0.1	1	8

Denotes land status 2 in Eldorado County

Emergency Evacuation Routes

The Lake Tahoe Basin's emergency evacuation routes consist of primary travel routes which are generally state highways that surround Lake Tahoe along its shoreline, with some highways on the north shore and the south shore offering access out of the Basin via an overland pass to a major highway such as 80, 50 or 395. The highways on the California side include Highway 50, Highway 89, Highway 267, and Highway 28. On the Nevada side, highways include Highway 28, Highway 431 (Mt. Rose Highway), and Highway 207 (Kingsbury Grade). The travel routes along the west shore (Highway 89) and the east shore (Highway 28) of Lake Tahoe do not afford access out of the Basin until one reaches either the south shore (Highway 50, 89/88 or 207) or the north shore (Highway 431, 267 or 89 north). This lack of egress creates the potential for traffic jams, decreased evacuation time, and increased risk of loss of life in the event of a major emergency such as a wildfire.

TRPA Regional Plan Update

The Tahoe Regional Planning Agency (TRPA) is a bi-state agency created by the states of Nevada and California under a bi-state compact in order to lead the cooperative effort to preserve, restore and enhance the unique natural and human environment of the Lake Tahoe basin. The TRPA regulates land use, rate of growth and impacts to the scenic environment among other things. The TRPA's Regional Plan, adopted in 1987 is due to be updated by 2011. This

document guides all land use decisions in the Basin and is the basis for all of TRPA's ordinances and environmental codes. The twenty draft documents for all elements and subelements are being circulated within stakeholder groups while detailed environmental studies are underway to compare four alternative scenarios for the regional plan update are as follows: Land Use, Housing, Noise, Natural Hazards, Air Quality, Water Quality, Community Design, Transportation, Conservation, Vegetation, Wildlife and Fisheries, Soil Conservation, Shorezone, Scenic, Open Space, Stream Environment Zone, Cultural Resources, Energy and Climate Change, Recreation, and Public Services and Facilities.

The TRPA Lake Tahoe Regional Plan contains Goals and Policies which support Implementation Measures. The aim of the draft documents for the twenty elements and subelements listed above is to assist in reviewing the list of proposed changes and assisting in understanding how each measure could be affected in each alternative scenario. The TRPA has drafted four different Regional Plan alternatives for analysis in the Environmental Impact Statement. The alternatives are as follows:

- Alternative One is the “No Project” alternative. Under this alternative, no changes would be made except what is necessary to keep current with the regulations of other federal and state agencies.
- Alternative Two, the alternative proposed by TRPA staff, focuses on a combination of incentives, regulation, and collaboration to achieve the environmental thresholds required by the Bi-State Compact.
- Alternative Three is largely like Alternative One except that Alternative Three allows for development to continue at a pace very similar to the one we have seen over the past 20 years.
- Alternative Four takes the approach that a decreased amount of allocations and an increased amount of regulation is the best way to ensure that the threshold within the twenty elements and subelements are attained.

CAL FIRE is directly involved with the planning process and is a member of the stakeholder group that includes the Lake Tahoe local, state and federal government fire chiefs. The CAL FIRE Division Chief was also elected to represent the Lake Tahoe Basin fire entities on the TRPA Advisory Planning Committee beginning August 2010.

Tahoe Basin Fire Safe Council Subchapter of the Nevada Fire Safe Council
In March 2001 AEU staff in the Tahoe Basin submitted a grant proposal in the amount of $72,000 to the Community-Based Wildfire Prevention Grant Program and was awarded those funds to establish a Fire Safe Council for the California portion of the Tahoe Basin. The requested grant was awarded and since then the Tahoe Basin Fire Safe Council has become fully functional, including acquiring non-profit corporation status, various grants, and final completion in Spring 2005 of the Tahoe Basin Community Wildfire Protection Plan to which AEU staff provided response.

In January 2005, the Tahoe Basin Fire Safe Council merged with the (Northern) Nevada Fire Safe Council based in Carson City, Nevada. However, the Tahoe Basin has retained its original administrator who now acts as the Tahoe Basin Coordinator for the Nevada Fire Safe Council, and continues to retain an office in South Lake Tahoe. The Tahoe Basin Fire Safe Coordinator for the Nevada Fire Safe Council has been active in securing various grants, in addition to conducting routine business of the council.

Lake Tahoe Basin Fire Departments

The Tahoe Basin area fire departments are located within both California and Nevada, and work very closely together regarding fire and EMS service issues. Local Tahoe Basin- area fire departments in California include Fallen Leaf, Lake Valley, Meeks Bay, Squaw Valley, Alpine, City of South Lake Tahoe, Northstar, Truckee, and North Tahoe, as well as CAL FIRE and the USFS Lake Tahoe Basin Management Unit. Local Tahoe Basin-area fire departments in Nevada include North Lake Tahoe and Tahoe-Douglas Fire Departments. In addition, local, state, and federal fire departments from nearby Washoe and Carson Valleys in Nevada and Alpine County in California participate in the Tahoe Regional Chiefs Association. These fire departments include the Reno Fire Department, Sparks Fire Department, Carson City Fire Department, East Fork Fire Department, Markleeville Volunteer Fire Department, Woodsford Volunteer Fire department, Bear Valley Volunteer Fire Department, Kirkwood Volunteer Fire Department, Humboldt-Toiyabe National Forest, and the Nevada Division of Forestry.

Due to recent fires including the 2002 Gondola Fire near Heavenly Valley Ski Resort, the 2004 Waterfall Fire northwest of Carson City, and the 2007 Angora Fire near Meyers and the City of South Lake Tahoe, the fire departments within the Tahoe Basin have been working aggressively to perform fuel reduction efforts within their districts and to increase public awareness of the necessity of defensible space clearing. Subsequently, the Amador-El Dorado-Sacramento-Alpine Unit for CAL FIRE chose to fund many fuel reduction projects using Proposition 40 grant monies from FY 04-05 through 07-08 to Tahoe area fire departments, the Nevada Fire Safe Council, and California State Parks.

Additional fuels reduction efforts include the hiring of fire department-employee crews to perform fuels reduction efforts within the North Lake Tahoe Fire Protection District located in the Incline Village area, and the North Tahoe Fire Protection District located in California near the Brockway area adjacent to the California-Nevada state line. The Lake Valley Fire Protection District is also hiring crews as fire department employees to perform fuels reduction work, including Proposition 40 projects.

Timber Harvesting Plans and Timber Harvesting Exemption Notices

Forest health is paramount to maintaining the water quality of Lake Tahoe, and efforts to prevent loss by catastrophic wildfire and other pathogens precipitate

landowners' decision to plan and prepare harvesting documents in the Tahoe Basin. Field recommendations by CAL FIRE staff regarding slash treatment and silvicultural treatments are thoroughly discussed and recommendations developed, which furthers the goals of the Prefire Management Plan.

In general, most tree removal activities within the Tahoe Basin are conducted on small, developed lots less than 3 acres in size. Such landowners commonly elect not to commercialize the small amount of product generated. Therefore, such non-commercial projects do not require a harvesting document be submitted to CAL FIRE for review and approval. On larger, mostly undeveloped ownerships, such as the California Tahoe Conservancy lands, tree removal is commonly elected for commercial use as the higher amount of wood generated from the ownerships is sold as fuelwood to the public, especially in the South Lake Tahoe vicinity where the more highly desirable Lodgepole Pine fuelwood is available.

Very few large (over 10 acres) non-federal ownerships exist within the Tahoe Basin. Consequently, very few Timber Harvesting Plans for areas located within the Tahoe Basin are submitted to CAL FIRE and commercial tree removal operations are generally conducted under Timber Harvesting Exemptions. However, regardless of whether or not a landowner elects to engage in a commercial tree removal venture, other agencies within the Tahoe Basin, such as the Tahoe Regional Planning Agency and the Lahontan Regional Water Quality Control Board, require the landowner to comply with additional and generally more stringent regulations regarding tree removal on non-federal lands. The Lahontan Region Water Quality Control Board and the Tahoe Regional Planning Agency each closely reviews all harvesting activities occurring within the Tahoe Basin.

In May 2005, the State Board of Forestry and Fire Protection adopted emergency rule language regarding allowing the removal of live trees within Watercourse and Lake Protection Zones (Stream Environment Zones as defined in TRPA ordinance) within the Lake Tahoe Basin non-federal lands by amending Title 14 CCR §1038 and §1038 (f) and became effective June 2005. The primary emergency nature of the regulation change was to provide regulatory relief for fuels reduction activities during the Summer of 2005 relative to permitting live tree thinning in Watercourse and Lake Protection Zones/Stream Environment Zones for fuel hazard reduction. Due to the discussions resulting from this rule change, the Board of Forestry and Fire Protection now acknowledges and understands the Forest Practice rules inconsistencies and complications related to exemption rules in Lake Tahoe and fully intends on considering Unit suggestions regarding permanent rule change.

California Tahoe Conservancy

The California Tahoe Conservancy (CTC) conducts fuel reduction projects throughout the Lake Tahoe Basin through their Urban Land Management Program. The California Tahoe Conservancy through an interagency agreement funded CAL FIRE personnel to perform various professional forestry duties,

including those duties required to implement fuel breaks from 1990 to 2010. Through this agreement, CAL FIRE staff provided professional forestry advice and services, including but not limited to, preparation and implementation of THPs, Exemptions and vegetation management projects on California Tahoe Conservancy properties. The CAL FIRE staff also provided technical assistance to the California Tahoe Conservancy Forest Habitat Enhancement Program on fuel reduction, forest health and wildlife habitat enhancement projects located within the urban interface and general forest areas.

In January 2005, CAL FIRE was authorized approximately 40 million dollars of Proposition 40 funds over 5 years by the Legislature for fuels reduction projects which would result in improvement and protection of watersheds and their water quality and assets at risk. Approximately $625,000 was allocated to CAL FIRE expressly for authorizing its use to the California Conservation Corp for fuels reduction projects on California Tahoe Conservancy lands.

Service Forestry

The Tahoe Regional Planning Agency (TRPA) requires a TRPA Tree Removal Permit to be issued by a TRPA Registered Professional Forester (or their designee through an MOU such as the case with the California Tahoe Conservancy and some Tahoe Basin fire districts), for the removal of any green tree six inches DBH or greater from all ownerships located within the Tahoe Basin. The requirement for this permit applies to both non-federal and federal lands.

A Memorandum of Understanding (MOU) between the CAL FIRE and TRPA was established in the 1980's to better serve the public and facilitate the tree removal process. The CAL FIRE Area Foresters, at the request of an individual landowner, inspected, marked, and issued the TRPA Tree Removal Permit. During the time CAL FIRE assisted with the program, no permit fee was charged to the landowner for this service. Due to funding problems and liability concerns, CAL FIRE discontinued its role in the TRPA Tree Removal Program permit process in 2002. Moreover, CAL FIRE formally terminated the MOU with TRPA in August 2006. The TRPA now requires California residents to either pay a $50.00 fee per site visit to the TRPA to cover the cost of a TRPA forester to provide this service or contact the local fire department who authorized by TRPA through an MOU to provide this service since the Angora Fire in 2007.

ALPINE COUNTY

Regarding CAL FIRE boundaries within Alpine County, it is located primarily within the CAL FIRE Amador-El Dorado-Sacramento-Alpine (AEU) Unit and has approximately four percent of its lands designated as State Responsibility Area. The AEU portion of Alpine County extends from the Sierra Crest near Bear valley eastward to the Nevada state border. The remaining western portion of Alpine County lies within the CAL FIRE Tuolumne-Calaveras Unit. The remaining ninety-six percent of Alpine County is United States Forest Service lands. The Region-4 Humboldt-Toiyabe National Forest manages most of the eastern portion of Alpine County from the crest of the Sierra Nevada near Bear Valley eastward to the Nevada state border. The western portion of Alpine County is located within Region-5 and the Stanislaus National Forest. The Bureau of Land Management also manages some lands within Alpine County.

Through the statewide Cooperative Fire Management Agreement, the USFS has been given the authority to act on CAL FIRE's behalf as the wildland fire response entity for State Responsibility Area (SRA) lands within Alpine County. Locally driven, specific terms of this agreement are addressed in an Annual Operating Agreement between the USFS Humboldt-Toiyabe National Forest and the CAL FIRE Amador-El Dorado-Sacramento-Alpine Unit. This agreement includes, but is not limited to, information such as tactical frequencies, wildland fire response notification procedures, apparatus and their staffing levels, facilities, prescribed burning procedures, and inspection and enforcement of PRC 4291.Therefore, due to this agreement, CAL FIRE does not have engine stations within Alpine County where the USFS has SRA lands within its Direct Protection Area (DPA).

Alpine County is generally split into two distinct geographic areas: Eastern Alpine County and Western Alpine County. Eastern Alpine County is the area located east of the crest of the Sierra, known as the Sierra Front, and is characterized by high elevation eastside pine stands with sage brush and Manzanita understory, as well as open, rangeland areas of sagebrush and mountain mahagony areas adjacent to the Nevada border. Communities include Markleeville and Woodsford. The Western Alpine County area is high elevation mixed conifer forest type. Communities include Bear Valley and Kirkwood.

Fire History, Fuel Hazards, and Ignition Information

Eastern Alpine County has been affected by large fires within the past 25 years. Such fires include the Indian Creek Fire which burned 6,000 acres in 1981; the Fredericksburg Fire which burned 2,000 acres in 1986, and the Acorn Fire, which burned nearly 6,000 acres and twenty-six homes in 1987. Lightning causes the most wildland fire ignitions in this area, with summer thunderstorms bringing erratic winds and lighting to the area. It is common to have a strong southwesterly wind coming over the Sierras in the afternoon during the summer,

which helps to drive fires. Most catastrophic fires have occurred during these conditions along the Sierra Front.

Western Alpine County has generally had low intensity fires and a low frequency of fires due to the high elevation and cool, moist summer temperatures. The Mesa Vista and Woodsford/Alpine Village neighborhoods have had few frequent fires in the last 20 years. Since 1980, at least three fires have burned in the area, some over the same ground multiple times. Fuels are flashy, making fire difficult to contain on initial attack.

2007 EASTERN ALPINE COUNTY IGNITION DATA

Humboldt-Toiyabe 2007 Fires Carson South

Date	Name	Acres	Class	Land status	Statistical Cause
3/9/2007	**Ranch**	**9**	**B**	**2 - Private, CA**	**2 equipment use**
4/13/2007	**Diamond Valley**	**0.5**	**B**	**2 - Private, CA**	**4 Campfire**
5/31/2007	190	0.5	B	1 - HTF, CA	1 Lightning
5/31/2007	Wolf	0.1	A	1 - HTF, CA	1 Lightning
6/1/2007	Centerville	0.25	B	1 - HTF, CA	1 Lightning
6/1/2007	Drew	0.25	B	1 - HTF, CA	1 Lightning
6/23/2007	**Hwy 89**	**45**	**C**	**2 - Private, CA**	**9 Misc. (Power line)**
6/27/2007	China Springs	0.1	A	1 - HTF, NV	9 Misc. Undetermined
7/1/2007	Arcadia	1	B	1 - HTF, NV	3 Burning Vehicle
7/5/2007	**Turtle**	**0.5**	**B**	**2 - Private, CA**	**9 Misc. (Power line)**
7/7/2007	**Carson River**	**5**	**B**	**2 - Private, CA**	**9 Misc. (Power line)**
7/11/2007	Faith	0.1	A	1 - HTF, CA	1 Lightning
7/23/2007	Poor	1	B	1 - HTF, CA	1 Lightning
7/30/2007	Jakes	0.1	A	1 - HTF, NV	9 Misc. Undetermined
8/1/2007	Blue Lakes	0.1	A	1 - HTF, CA	9 Misc. Undetermined
8/10/2007	**Hidden**	**0.1**	**A**	**3 - Private, CA**	**9 Misc. Undetermined**
8/14/2007	Power Dam	70	C	1 - HTF, NV	9 Misc. Undetermined
8/29/2007	Raymond	0.1	A	1 - HTF, CA	1 Lightning
10/30/2007	Dutch	0.1	A	1 - HTF, CA	1 Lightning
10/30/2007	Genoa	0.25	B	1 - HTF, NV	1 Lightning
11/4/2007	China Springs 2	335	D	1 - HTF, NV	9 Misc. Undetermined
TOTAL	21 FIRES for ACRES	470	6 Fires total on SRA totaling 60 acres. All SRA fires human		

caused

2008 EASTERN ALPINE COUNTY IGNITION DATA

Humboldt-Toiyabe 2008 Fires Carson South

DATE	SIZE	CAUSE	LAT	LONG	LAND STATUS
03/25/08	**.1 ac**	**H**	**38 48 50**	**119 46 08**	**CA – Private**
03/31/08	**.1 ac**	**H**	**38 47 47**	**119 47 33**	**CA – Private**
05/30/08	1.0 ac	H	39 09 47	119 46 10	FS - Nevada
07/14/08	1.25 ac	L	38 35 45	119 42 41	FS – California
07/14/08	.25 ac	L	38 33 24	119 42 02	FS – California
07/14/08	.25 ac	L	38 34 06	119 43 18	FS – California
07/14/08	3.0 ac	L	38 31 16	119 42 19	FS – California
08/17/08	.1 ac	L	38 32 36	119 35 36	FS – California
08/31/08	216. 0 ac	H	38 45 55	119 56 00	FS – California
09/09/08	.1ac	H	38 30 14	119 46 07	FS – California
08/25/08	.1ac	H	38 45 40	119 47 00	FS – California
10/15/08	**.1ac**	**H**	**38 47 35**	**119 48 13**	**CA – Private**

* Burnside 176 ac FS; 40 ac Private

2009 EASTERN ALPINE COUNTY IGNITION DATA

Humboldt-Toiyabe 2009 Fires Carson South

NAME	DATE	SIZE	CAUSE	LAT	LONG	LAND STATUS
Cottonwood	05/26/09	.3 ac	L	38 43	119 41	FS – Nevada

				12	44	
Jakes	05/30/09	.1 ac	L	38 51 33	119 40 30	FS – Nevada
Zaca	06/21/09	.1 ac	L	38 40 14	119 42 31	FS – California
Spooner	07/11/09	.1 ac	H	39 06 45	119 51 46	FS – Nevada
Burnside	07/28/09	.25 ac	L	38 45 35	119 55 44	FS – California
Crater Wash	**07/28/09**	**.1 ac**	**L**	**38 44 11**	**119 56 58**	**Private**
Vaquero	07/29/09	.25 ac	L	38 33 25	119 35 40	FS – California
Centerville	07/30/09	8 ac	L	38 37 53	119 44 12	FS – California
Campground	08/15/09	.1 ac	H	38 41 50	119 46 25	FS – California
Walley	08/30/09	.1 ac	H	38 59 24	119 50 14	FS – Nevada
Larame	09/12/09	.1 ac	L	38 41 06	119 47 00	FS – California
Meadow	**09/12/09**	**.1 ac**	**L**	**38 39 46**	**119 48 29**	**Private**
Indians	09/12/09	.1 ac	L	38 38 16	119 47 44	FS – California
Leviathan	09/12/09	.1 ac	L	38 40 53	119 39 14	FS - California
Poor	09/12/09	.1 ac	L	38 37 42	119 46 28	FS - California
Pleasant	09/12/09	.1ac	L	38 38 39	119 47 40	FS - California
Pleasant 2	09/12/09	.1 ac	L	38 38 36	119 47 26	FS - California
Pit	09/13/09	.1 ac	L	38 52 38	119 42 56	FS - Nevada
Monitor	10/02/09	.1 ac	H	38 39 56	119 43 59	FS - California

NEED 2010 ALPINE COUNTY STATS FIR THE HTF-IN PROCESS

Emergency Evacuation Routes

The emergency evacuation routes in Alpine County consist of primary travel routes which are generally state highways that generally move traffic in an east-west direction between Nevada and the Sacramento and San Joaquin Valleys of

California. These routes include Highway 89, 88, 4, and the Emigrant Trail (old Highway 88).

Alpine County Proposition 40 Fuels Reduction Projects

In 2004, the legislature authorized a new CAL FIRE fuels reduction program of approximately 40 million dollars of Proposition 40 funds over 5 years. The objective of the fuels reduction projects is to improve and protect watersheds and water quality which are currently at risk throughout the Sierra Nevada. Fuel reduction treatments meet this objective by reducing the risk of catastrophic fire. During the first grant cycle held in spring 2005, the Alpine Fire Safe Council applied for its first CAL FIRE fuels reduction grant. .

2005 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS:

- Alpine County Fire Safe Council Hot Springs Road Fuels Reduction: Within 100 feet of centerline of Hot Springs Road, create a roadway defense zone and emergency ingress/egress improvement covering 30 acres by removing tree under 8 inches DBH and all brush within 20 feet of the road bed edge of Hot Springs Road. Unfortunately, due to lack of participating landowners, the county was forced to forfeit the grant funds in November 2006.

2006 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Alpine County Public Works Bear Valley Fuel Reduction Program

  Approximately 30 acres was treated using a masticator in order to create a community fuel break adjacent to the Bear Valley subdivision in western Alpine County. The project has been completed.

2007 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- None Submitted for 2007

2008 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Markleeville-Woodsford Fuel Reduction Project

  Priority areas pre-planned for evacuation centers and evacuation routes were targeted for fuel reduction. Target areas included Turtle Rock Park, Diamond Valley Elementary School, and major transportation routes. Small trees and bush were masticated or removed to protect, maintain, and enhance the Carson River watersheds by reducing dangerous fuel loadings. Project completed 2009.

Alpine County Fire Safe Council

The Alpine County Fire Safe Council was formed in 2001 when Alpine County was awarded a grant through the Community-Based Wildfire Prevention Grant Program to support the development of an Alpine County Fire Safe Council. In 2003, the Alpine County Resource Advisory Committee (RAC) allocated funds to the Fire Safe Council in the form of Title II funds to further assist in development of a Fire Safe Council. As a result, in 2003 the Alpine Fire Safe Council was formally established through these two aforementioned cooperative efforts between the County Board of Supervisors and the Alpine County Resource Advisory Committee. The Amador-El Dorado unit has provided technical assistance through the development of the Alpine Fire Safe Council.

The Alpine FSC is now currently in place and pursuing and obtaining grants, and is very active in county-wide fire protection issues, such as pre-fire development concerns and enforcement and Public Resource Code 4291 compliance. Specific accomplishments of the Alpine Fire Safe Council include creation of educational kiosks located at key county government locations; courtesy fire safe ordinance review of proposed developments; completion of the Manzanita Lane Fuel reduction project in 2004, completion of the Markleeville-Woodsford Fuels reduction project in 2009, and facilitation of the creation of the Fire Services Ad-Hoc Committee, which is a collaborative effort with the County Board of Supervisors, public, and fire and EMS personnel to address the issues surrounding county volunteer fire suppression resources.

In addition, a major accomplishment of the Alpine County Fire Safe Council is the completion of the draft Alpine County Community Fire Plan. The Alpine County Fire Safe Council received a grant from Region 4 of the USFS in 2004 to provide grant funding for completion of a Community Fire Plan. The Alpine Fire Safe Council prepared their Community Wildfire plan in 2004 and distributed the draft for public review in December 2004, to which CAL FIRE AEU staff provided response. The Alpine County Fire Safe Council is seeking to finalize the plan during summer 2005. The Community Fire Plan is an important document with which to augment county planning efforts regarding fire protection planning, especially as Alpine County is experiencing a significant increase in large-scale development as nearby Lake Tahoe becomes increasingly populated, difficult and expensive within which to develop. Therefore, the Alpine County Fire Safe Council, in conjunction with the Alpine County Board of Supervisors, established an Ad-Hoc Committee in 2004 to address fire protection issues within Alpine County. The Ad-Hoc Committee has identified a lack of implementation and enforcement of the State Responsibility Fire Safe Regulation regarding new development. The 2005 Proposition 40-funded AEU Division Chief stationed in South Lake Tahoe addresses responses to new development regarding the SRA Fire Safe Regulations and attends Alpine County Board meetings, Alpine County Fire Safe Council meetings, and is on the County Technical Advisory Committee for new development.

The Alpine County Community Fire Plan identifies and prioritizes areas within Alpine County which are at risk of catastrophic fire. The Shay Creek Subdivision located adjacent to Hot Springs Road near Markleeville is rated "High". Consequently, the Alpine County Community Fire Plan identifies the Hot Springs Road Roadway and Utility Access Fuel Reduction Project as Project #1 for treatment. The Alpine County Fire Safe Council submitted to the FireWise Grants Clearinghouse in January 2005 its proposal to request grant funding to reduce the fuels within the Hot Springs Road Roadway and Public Utility Access Fuels Reduction Project The Amador-El Dorado Unit chose in March 2005 to award the Alpine Fire Safe Council with Proposition 40 funding in the amount of $45,500 for the proposed Hot Springs Roadway and Utility Access Fuels Reduction Project for FY 04-05 and 05-06. The Alpine County Fire Safe Council was unable to begin the project due to landowners that subsequently chose not to participate.

Alpine County Fire Departments

Alpine County is composed of four Planning Areas: Woodsford, Markleeville, Bear Valley, and Kirkwood. These four Planning Areas correspond not only to watersheds, but to the four local fire protection jurisdictions. All four fire protection entities are volunteer based and are dispatched by the Alpine County Sheriffs Department. Woodsford and Markleeville Volunteer Fire Departments are not within a taxed district and are struggling financially. In May 2005, the Ad-Hoc Committee of the Alpine County Board of Supervisors and the Fire Safe Council recommended to the County Board the consolidation of the Woodsford and Markleeville Fire Departments into the Eastern Alpine County Fire Department. The consolidated fire departments would have one full-time paid chief and would be under the direction of the Alpine County Board of Supervisors. However, each department would retain their unique geographic identities and history through retention of each department's station name and volunteers. The two areas would be referred to as the Markleeville Division and the Woodsford Division. This proposed consolidation, not yet approved by the County Board, would result in the two fire departments becoming stronger financially and therefore more successful in obtaining grants, training, equipment, etc. In addition, the consolidation would result in the fire departments having a stronger, more unified voice in county fire protection and Emergency Medical Services issues.

<u>WOODSFORD</u>

Fire protection is provided by the Woodsford Volunteer Fire Department and has an

Insurance Services office (ISO) Rating 10. The Woodsford Volunteer Fire department is not within a district. Currently, volunteer staffing levels are at a critical low. Hydrants do not exist within the response area and the nearest drafting source is the Carson River.

MARKLEEVILLE

Fire protection is provided by the Markleeville Volunteer Fire Department and is not within a district. Markleeville Volunteer Fire Department has one station and has an ISO Rating 6 where hydrants exist and an ISO Rating 8 in areas without hydrants but is located within 5 miles of the Markleeville Fire Station.

BEAR VALLEY

Fire protection for Bear Valley is provided by the Bear Valley Volunteer Fire Protection District, and is funded through assessment fees. The Bear Valley Fire Protection District has an ISO Rating 5.

KIRKWOOD

Fire protection for Kirkwood is provided by the Kirkwood Volunteer Fire Protection District, and is funded through assessment fees. The Kirkwood Volunteer Fire Protection District has an ISO Rating 4.

V. PERSONNEL NEEDS FOR CAL FIRE WITHIN THE LAKE TAHOE BASIN AND ALPINE COUNTY

The following five listed items (positions, emergency response vehicles, training, and equipment), and their associated expenditures are needed to perform forestry and fire prevention duties within the Lake Tahoe Basin and Alpine County. All of these duties are currently provided by two permanent positions (Forester II and Battalion Chief), both of which are grant funded only through 2012.

1. **One (1) CAL FIRE Prevention Fire Captain**: This permanent, full-time position would be assigned to provide defensible space (California Public Resource Code 4291) education, inspection and enforcement to the public, as well as training to the local government fire departments of Lake Tahoe and Alpine County. This is a completely new position to the Lake Tahoe Basin and Alpine County Division for CAL FIRE. No prior or current funding exists for these two positions. **Total First Year Start-Up Cost:** $**175,000 Total Cost Per Year: $150,000**

2. **Two (2) CAL FIRE Forestry Aides** (all seasonal, 9-month maximum positions each): These four seasonal, maximum 9-month positions would be assigned to work for the two Fire Captains referenced above in Item #1. The Forestry Aides would work as a pair to perform California Public Resource Code 4291 inspections from Spring through Fall under the supervision of the Fire Captain listed above. **Total First Year Start-Up Cost: $110,000 Total Cost Per Year Thereafter: $77,500**

3. **One (1) CAL FIRE Office Technician:** This permanent, full-time position is needed to handle all incoming and outgoing telephone, fax, and written correspondence, as well as mailing of the defensible space (Public resource Code 4291) certified inspection notices. This is a completely new position to the Lake Tahoe Basin and Alpine County Division for CAL FIRE. No prior or current funding exists for this position. **Total First Year Start-Up Cost: $86,500 Total Cost Per Year Thereafter: $96,500**

4. **One (1) permanent CAL FIRE Forester I:** This position would perform enforcement of the California Forest Practices Act rules and regulations, assist in the inspection and especially enforcement of the California Public Resource Code 4291 inspection, training, education, and enforcement program, as well as the prescribed burning, fuel reduction, and service forestry needs for CAL FIRE in El Dorado and Alpine County. **Total First Year Start-Up Cost: $120,000 Total Cost Per Year Thereafter: $100,000**

5. **One (1) permanent-funded CAL FIRE Battalion Chief for the El Dorado portion of the Lake Tahoe Basin**: A permanent but grant-funded Battalion Chief currently exists for El Dorado County at Lake Tahoe. This position leads the California Public Resource Code 4291 inspection, training, education, and enforcement program, as well as the prescribed burning, fuel reduction, and operational fire needs for CAL FIRE in El Dorado County. The position was originally funded by California Proposition 40 funding from FY 07/08 through Fiscal Year 08/09. In December 2008, the Proposition 40 funds were frozen by the California State Controller's Office due to the economic downturn, State budget shortfall, and inability of the State to sell bonds. This Battalion Chief position is currently funded by the United States Forest Service Region 5 through their State and Private Forestry Program monies. This federal State and Private Forestry Program funding is slated to last for 3 years, ending September 31, 2012. CAL FIRE requests permanent funding for this position. **Total First Year Start-Up Cost: $195,000 Total Cost Per Year Thereafter: $155,000**

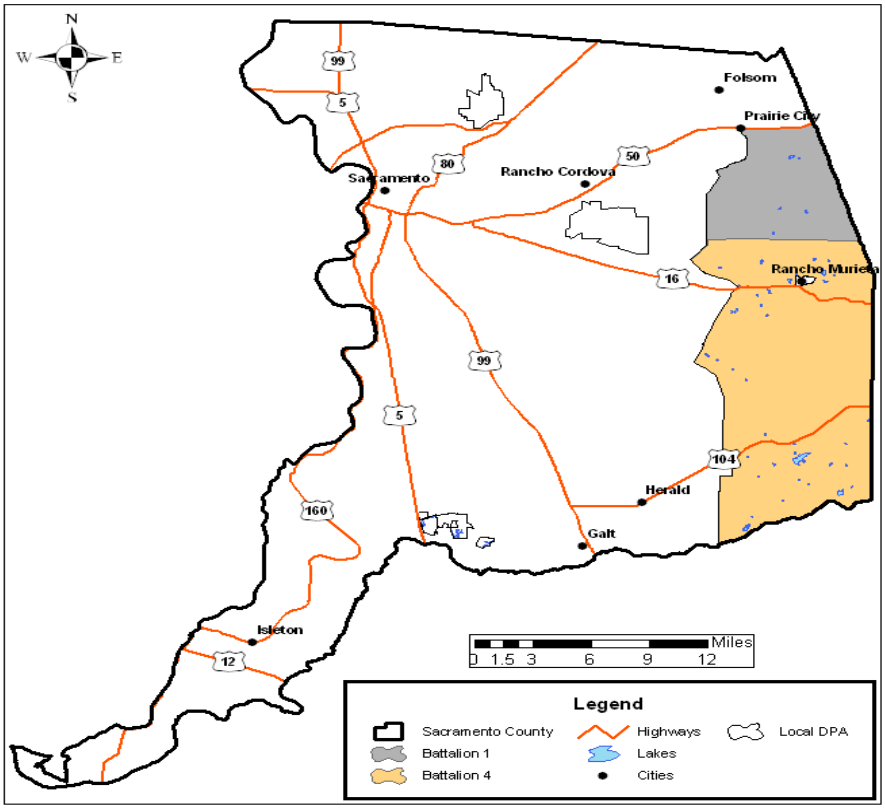
6. **One (1) permanent-funded CAL FIRE Forester II (Division Chief) for the El Dorado portion of the Lake Tahoe Basin:** A permanent, grant-funded Forester II currently exists for El Dorado County at Lake Tahoe. This position leads the California Public Resource Code 4291 inspection, training, education, and enforcement program, as well as the prescribed burning, fuel reduction, and operational fire and Forest Practices and service forestry program oversight needs for CAL FIRE in El Dorado County. The position was originally funded by California Proposition 40 funding FY 04/05 through Fiscal Year 08/09. In December 2008, the Proposition 40 funds were frozen by the California State Controller's Office

due to the economic downturn, State budget shortfall, and inability of the State to sell bonds. This Forester II position is slated to be funded by United States Forest Service funding through their State and Private Forestry Program monies beginning July 1, 2010. This federal State and Private Forestry Program funding is slated to last for 3 years, ending September 31, 2012. CAL FIRE AEU requests permanent funding for this position. **Total First Year Start-Up Cost: $202,000 Total Cost Per Year Thereafter: $175,000**

7. **CAL FIRE Emergency Dispatch Repeater for the Amador El Dorado Unit serving the Lake Tahoe Basin portion of El Dorado County.** A repeater does not exist within the southern portion of the Lake Tahoe Basin for the Camino CAL FIRE Emergency Command Center for CAL FIRE resources staffed in the Lake Tahoe Basin (existing full staffing in El Dorado County portion of Lake Tahoe includes eleven personnel and a fire engine; proposed full staffing stated herein includes fourteen (14) personnel and a fire engine). Therefore, CAL FIRE resources have no direct communication with their CAL FIRE Emergency Command Center, a significant safety issue, without requesting permission of the Forest Service to use the Forest Service repeater in the Tahoe Basin. Cost includes FCC licensing, hardware, equipment, installation, and maintenance. **One time cost: $200,000**

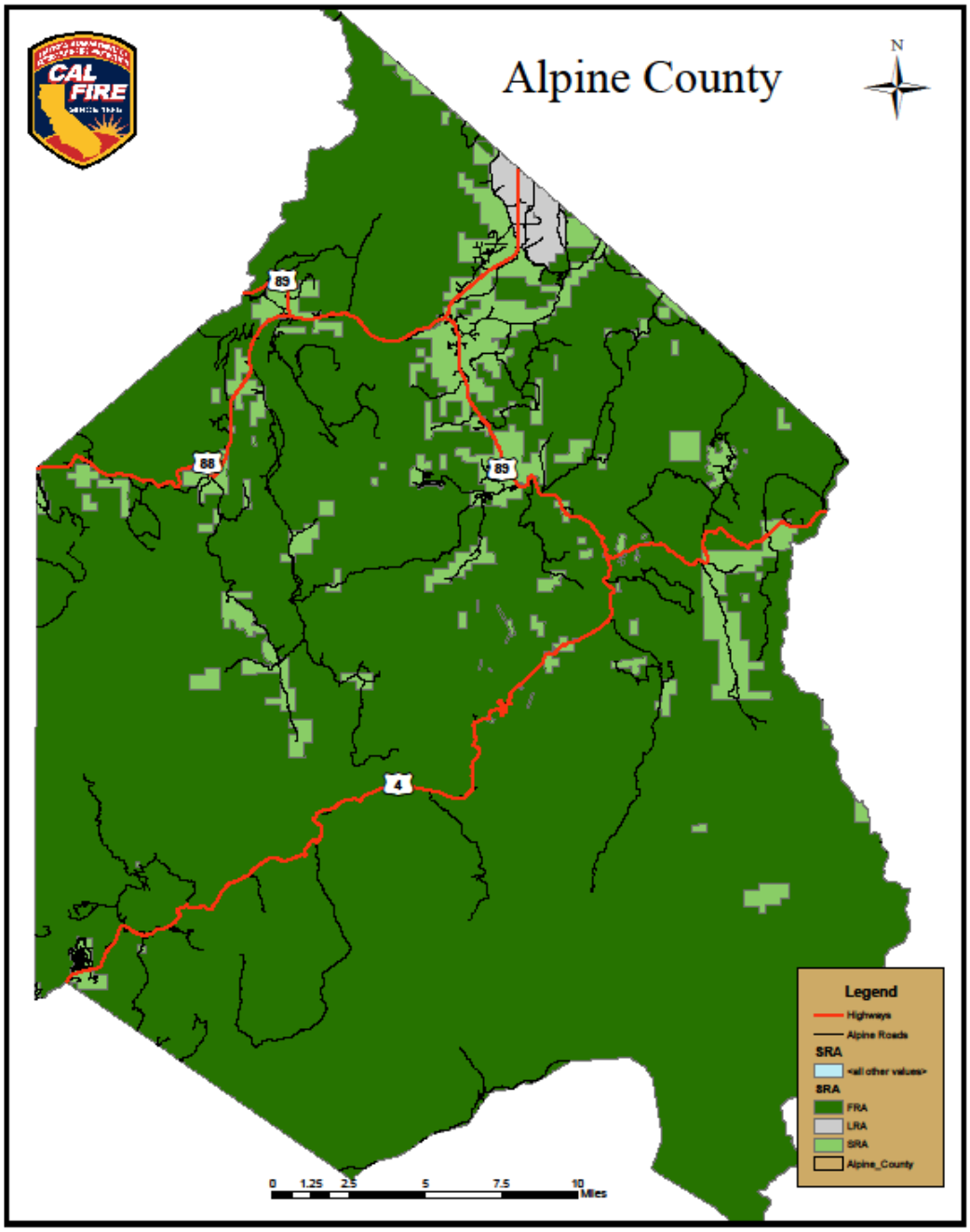
Sacramento County

Sacramento county consists of 119,248 acres of CAL FIRE Direct Protection Area and is divided into portions of CAL FIRE Battalions 1 and 4 as shown below:



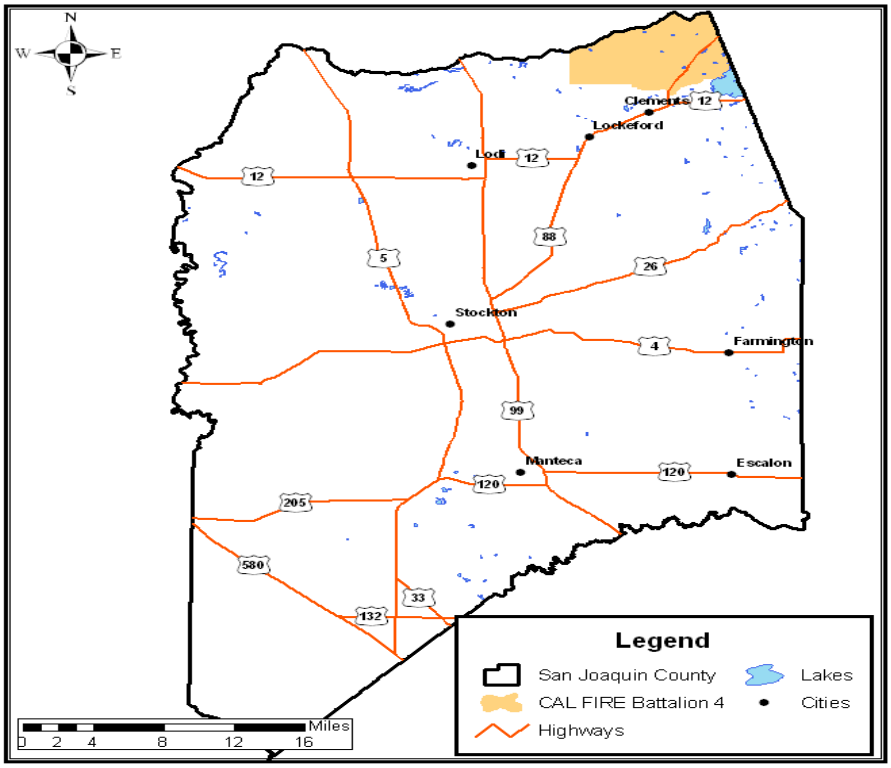
ALPINE COUNTY

Alpine County is located primarily within the CAL FIRE Amador-El Dorado-Sacramento-Alpine (AEU) Unit and has approximately four percent of its lands designated as State Responsibility Area. The AEU portion of Alpine County extends from the Sierra Crest near Bear valley eastward to the Nevada state border. The remaining western portion of Alpine County lies within the CAL FIRE Tuolumne-Calaveras Unit. The remaining ninety-six percent of Alpine County is United States Forest Service.



San Joaquin County

San Joaquin county consists of 24,888 acres of CAL FIRE Direct Protection Areas with the Amador-El Dorado Unit and is part of CAL FIRE Battalion 4 as shown below:



APPENDIX A: HIGH PRIORITY PRE FIRE PROJECTS

Batt	Project Number	Project Name	Status	Estimated Completion Year	Project Type	Net Acres

Status Guide: A = Active, P = Planning, C = Completed, O = Ongoing, M = Maintenance.

APPENDIX B: UNIT STRATEGIC FIRE PLAN AMENDMENTS

Date	Section Updated	Page Numbers Updated	Description of Update	Updated By

APPENDIX C: PRIORITY GOALS AND OBJECTIVES FOR 2010-2012

CAL FIRE Units were asked to identify two or more priority objectives under each goal in the 2010 Strategic Fire Plan for California. The Units' priorities are identified in bold and a measurement criteria are provided for each of the identified objectives. Throughout the next year, the Units will implement the identified priorities and report on the measurement criteria by June 2012. The priority objectives are displayed under three headings:

A. SACRAMENTO PROGRAMS OR COMMITTEE ONLY
B. SACRAMENTO PROGRAMS AND STAFF OR COMMITTEE, REGIONS AND UNITS
C. UNITS ONLY

These categories are not intended to exclude Units from addressing priority objectives in any of the three categories, they are only recommendations.

A. SACRAMENTO PROGRAMS OR COMMITTEE ONLY

Goal 1: Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the sharing of all analyses and data collection across all ownerships for consistency in type and kind.

Objectives:

a) Identify and provide appropriate automated tools to facilitate the collection, analysis and consistent presentation of datasets.

Measurement Criteria: *CAL FIRE shall establish policy that specifies spatial databases covering all forest and rangeland to not be older than 10 years. Include minimum requirements for spatial databases. Follow the coordinated work schedule with the USDA Forest Service to maintain cost effective collection and processing of data.*

Goal 2: Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.

Objectives:

a) Identify the minimum key elements necessary to achieve a fire safe community, and incorporate these elements into land use planning, CWPPs and regional, county and Unit fire plans.

Measurement Criteria: *CAL FIRE to create a working committee with CAL Chiefs, USDA Forest Service and other key organizations to develop, monitor and refine elements of fire safe community, including evacuation plans. The Committee shall review existing templates for FIREWISE Assessments, CWPPs, fire plans and land use plans; identify the common elements and approaches for better integration. Utilize fire protection, planning and engineering expertise to identify the key elements (from existing templates) necessary for fire safe communities. Once agreed upon, these key elements will then be used as a checklist to guide consistency in fire safe planning efforts across jurisdictions. At a minimum, annually report to the Board on results.*

Goal 3: Support and participate in the collaborative development and implementation of wildland fire protection plans and other local, county and regional plans that address fire protection and landowner objectives.

Objectives:

a) Establish a working group, consisting of Board members and Departmental staff, to develop minimum standard elements for inclusion in Unit fire plans.

b) Emphasize coordination of Unit fire plans with community wildfire protection plans to encourage and support one consistent approach. Develop county or regional fire plans by bringing together community-based groups, such as fire safe councils and affected fire and land management agencies.

Measurement Criteria: *These measurement criteria meets objectives a and b. CAL FIRE to revise the template for the Unit fire plans to incorporate the goals and objectives of the 2010 Strategic Fire Plan. During the revision, the template for a CWPP will be jointly reviewed in order to reduce duplication of fire planning efforts. The key elements identified through the process identified in Goal 2, Objective b will also be incorporated into the Unit fire plan/CWPP.*

c) Create and support venues in which individual community members can be actively involved in local fire safe councils, community emergency response teams, FIREWISE and other community-based efforts to develop readiness plans and educate landowners to mitigate the risks and effects of wildland fire.

Measurement Criteria: *The California Fire Alliance to work with the California and local FSCs to develop venues (e.g., workshops) that assist landowners with readiness planning and education. CAL FIRE, California Fire Alliance Liaison to report to the Board annually on Alliance activities.*

Goal 4: Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuels reduction activities, fire prevention and fire safe building standards.

Objectives:

a) Educate landowners, residents and business owners about the risks and their incumbent responsibilities of living in the wildlands, including applicable regulations, prevention measures and preplanning activities.

Measurement Criteria: *In coordination with the CAL FIRE Communications Program, the USDA Forest Service and local fire agencies, University of California and county cooperative extension offices, CAL FIRE to collect information on methods and effectiveness of existing outreach. Complete the information collection within year one of adoption of the 2010 Strategic Fire Plan. Develop a common set of measures to assess CAL FIRE efforts, build those into Unit fire plans and report to the Board. Report the progress of implementation at the end of year two.*

Goal 5: Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, state and federal responsibility areas.

Objectives:

b) Work to remove regulatory barriers that limit hazardous fuels reduction activities.

Measurement Criteria: *In conjunction with the Resource Protection Committee, CAL FIRE will develop an approach to identifying and recommending ways to address regulatory and other barriers that limit hazardous fuels reduction activities. This approach should include consultation with the Board's Interagency Forestry Working Group and with other agencies, such as the USDA Forest Service, the US Fish and Wildlife Service, the California Energy Commission, the Department of Fish and Game, regional water quality control boards, local government and the public. Finish this compilation within the first year of adoption of the 2010 Strategic Fire Plan. Based on barriers identified and recommendations for change, report to the Board starting in the second year.*

Goal 6: Determine the level of fire suppression resources necessary to protect the values and assets at risk identified during planning processes.

Objectives:

e) Initiate and maintain cooperative fire protection agreements with local, state and federal partners that value the importance of an integrated, cooperative, regional fire protection system and deliver efficient and cost effective emergency response capabilities beneficial to all stakeholders.

Measurement Criteria: *CAL FIRE to identify the number and effectiveness of agreements and partnerships. In conjunction with the Board's Resource Protection Committee, CAL FIRE will develop suggested measures of effectiveness of cooperative agreements. This should be in collaboration with its partners, completed within 18 months of adoption of the 2010 Strategic Fire Plan and reported to the Board.*

i) Provide for succession planning and employee development at all levels within CAL FIRE to maintain emergency response leadership capabilities, administrative management skills and pre-fire planning expertise.

Measurement Criteria: *CAL FIRE to revise and update the information developed in the 2005 Succession Planning meetings. This work should be completed within two years of the adoption of the 2010 Strategic Fire Plan, with annual reporting to the Board based on issues raised, including identification of key training needs, funding available and expenditures on the training program, content of Academy curricula, number of students requesting and/or able to take classes at the Academy, local community college or other educational outlets.*

B. SACRAMENTO PROGRAMS AND STAFF OR COMMITTEE, REGIONS AND UNITS

Goal 1: Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the sharing of all analyses and data collection across all ownerships for consistency in type and kind.

Objectives:

b) Engage and participate with local stakeholder groups (i.e., fire safe councils and others) to validate and prioritize the assets at risk.

Measurement Criteria*: CAL FIRE shall designate personnel as advisors/liaisons to the California Fire Safe Council (CFSC) and to each county or regional FSC. The advisors will be responsible for reporting activities to the Unit and Region. The advisor to the CFSC will report to the Board. Annual reporting of time-spent working will be displayed in hours at the Unit, Region and Headquarters level. Reporting will include activities with local FSCs, communities, watershed groups or others defining hazards and risk of wildfire and documenting these in a CWPP or Unit fire plan. Emphasize the products developed in Goal 3, Objective b. Advisors will emphasize using standard guidelines and templates for consistency throughout the state.*

Goal 2: Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.

Objectives:

b) Assist the appropriate governmental bodies in the development of a comprehensive set of wildland and wildland urban interface (WUI) protection policies for inclusion in each county general plan or other appropriate local land use planning documents.

Measurement Criteria: *CAL FIRE to appoint a committee including Unit, Region, Headquarters and Contract County representatives. Develop a work plan that identifies key elements of improving WUI strategies, including planning. Reporting should be based on elements identified and priorities for addressing them.*

Under the Board's Resource Protection Committee, review existing Board policies as they relate to wildland fire and the relevance (ease of use, applicability) to incorporation in local general plans. Identify areas of possible improvement and update policies.

Track and report hours at the Unit, Region and Headquarters level spent in reviewing plans and projects; number of local Board/Council, Planning Commission meetings and/or meetings with other cooperators.

Goal 4: Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuels reduction activities, fire prevention and fire safe building standards.

Objectives:

c) Increase the number and effectiveness of defensible space inspections and promote an increasing level of compliance with defensible space laws and regulations through the use of CAL FIRE staffing as available, public and private organizations, and alternative inspection methods.

Measurement Criteria: *CAL FIRE to form an advisory committee to review PRC §4291 regulations and make recommendations to the Board that will provide for consistency, streamlining and clarification of existing regulations. The Committee shall develop criteria to increase the number and effectiveness of defensible space inspections. The Committee will develop an implementation plan for the recommendations and report on progress to the Board*

Goal 7: Address post-fire responsibilities for natural resource recovery, including watershed protection reforestation, and ecosystem restoration.

Objectives:

a) Encourage rapid post-fire assessment, as appropriate, and project implementation to minimize flooding, protect water quality, limit sediment flows and reduce other risks on all land ownerships impacted by wildland fire.

Measurement Criteria*: Provide training for CAL FIRE personnel on suppression repair and damage assessment procedures. Develop standard formats and documentation templates for these assessments. Identify and use the findings to reduce the impacts of fire suppression on the landscape and improve resiliency of assets at risk from wildfire.*

C. UNITS ONLY

Goal 5: Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, state and federal responsibility areas.

Objectives:

h) Support the availability and utilization of CAL FIRE hand crews and other CAL FIRE resources, as well as public and private sector resources, for fuels management activities, including ongoing maintenance.

Measurement Criteria*: CAL FIRE will report to the Board on the number of crews available each year with a description of projects, including acres treated, completed by each Unit. Report the number of agreements and/or amount of funding and acres treated that involve grants or partnerships with federal agencies, resource conservation districts, local FSCs, fire districts, watershed groups or other non-profit or community groups that support the ability to carry out fuels reduction projects.*

Goal 7: Address post-fire responsibilities for natural resource recovery, including watershed protection reforestation, and ecosystem restoration.

Objectives:

e) Assist landowners and local government in the evaluation of the need to retain and utilize features (e.g., roads, firelines, water sources) developed during a fire suppression effort, taking into consideration those identified in previous planning efforts.

Measurement Criteria: *CAL FIRE (utilizing Incident Command Teams) to schedule a post-fire review of the planning documents that cover the area affected by the fire. Review the goals, objectives and projects (implemented and planned) to identify successes and failures. Review the features developed during the fire and incorporate them into the existing Unit fire plan documents. This objective will only be reported when a fire occurs in an area with an existing Unit fire plan document. Incident command teams may conduct this post fire assessment under the direction of the Unit Chief.*

D. ADDITIONAL UNIT SPECIFIC GOALS AND OBJECTIVES

APPENDICES D-Z *OPTIONAL – Change to BLACK*

NATIONAL FIRE DANGER RATING SYSTEM OPERATING PLAN
Fire Weather Operating Plan

Amador-El Dorado- Sacramento-Alpine Unit
California Department of Forestry and Fire Protection

Amador, El Dorado, Alpine, Sacramento, and portions of San Joaquin Counties and the Tahoe Basin

April 21, 2010

Camanche Fire July 10th 2006 Buena Vista Buttes, Amador County

Plan Prepared By:

Patrick McDaniel
Amador-El Dorado Unit
CAL FIRE

Plan Approval

Kelly Keenan, Chief, Amador-El Dorado Unit, CAL FIRE **Date**

Jody Gossner, Deputy Chief, Amador-El Dorado Unit, CAL FIRE **Date**

Justin Sanders, ECC Chief, Amador El Dorado Unit, CAL FIRE **Date**

Table of Contents

I. Introduction

This National Fire Danger Rating System Fire Danger Operating Plan discusses the setup and management of the National Fire Danger Rating System (NFDRS) fire danger modeling program for the Amador-El Dorado Unit (AEU). Fire danger is only one factor affecting operational decision making. The analysis framework used to develop this operating plan tries to account for the weather, fuels and topography driven factors as they affect fire danger and burning conditions throughout AEU. This analysis framework does not necessarily account for other factors such as resource draw down, training levels, political factors, mutual aid status, over riding budget constraints, and other pertinent issues.

AEU created a Fire Weather Working Group charged with the creation and maintenance of this plan. Individuals with specific expertise were selected to work towards a Unit wide operating plan that fulfills the objectives set forth by the California Department of Forestry and Fire Protection. The following individuals participated in the development of this plan and make up the Fire Weather Working Group:

Jody Gossner	Unit Deputy Chief Officer
Mike Olivarria	Battalion Chief, Unit Fire Weather Coordinator
Mark Brunton	Battalion Chief
Charlie Blankenheim	Battalion Chief
Justin Sanders	ECC Chief
Patrick McDaniel	VMP Coordinator
Douglas Ferro	Pre-Fire Engineer Captain

II. Roles and Responsibilities

A. Fire Weather Program Coordinator

The AEU Fire Weather Program Coordinator is Mike Olivarria. The Fire Weather Coordinator is responsible for the annual data analysis and preparation of this Fire Weather Operating Plan. Annual review will be completed at which point CAL FIRE FRAP has completed and made available the data conversion from Unit Fire Reporting System (CAIRS) to the Fire Family Plus format.

The Fire Weather Program Coordinator will be responsible for the management of the NFDRS models which will include fuel model green up and associated quality control as the fire season progresses. The Fire Weather Program Coordinator will monitor the seasonal vegetation development to properly manage the NFDRS models through the green up phase. No one else in the Unit is authorized to make any changes in the WIMS NFDRS settings as the green up process begins.

B. Dispatch/Communications/Emergency Command Center

Staff assigned to the Amador-El Dorado Interagency Command Center (ECC) in Camino, California have the responsibility for the implementation of this NFDRS Fire Danger Operating Plan and maintenance of the Weather Information Management System (WIMS). The ECC will have the responsibility of calculating the NFDRS daily indices and the responsibility for transmission of index information to the field. The Daily Operations Appendix of this plan will outline the ECC roles and responsibilities for the day to day NFDRS operation.

C. RAWS Station Maintenance Responsibilities

Weather station maintenance and training is the responsibility of the following individuals:

Weather Station	*Agency*	*Position*	*Site Maintenance*
Zion RAWS (NFDRS)	CAL FIRE	**Battalion 3**	**Zion Station**
Ben Bolt RAWS (NFDRS)	CAL FIRE	**Battalion 1**	**El Dorado Station**
Pilot Hill RAWS (NFDRS)	CAL FIRE	**Battalion 2**	**Pilot Hill Station**
Campo Seco RAWS (NFDRS)	**East Bay MUD**	**Campo Seco TCU**	**East Bay MUD**
CAL FIRE Portable #27	CAL FIRE	**Pre-Fire/VMP**	**F2790**

Weather station site maintenance is described in Chapter 4 of the *Weather Station Handbook – an Interagency Guide for Wildland Managers* by Arnold I. Fiklin and William Fischer. This guide has been adopted as CAL FIRE policy by reference in CAL FIRE's Fire Weather Handbook, Handbook 7800. Weather station standards are also described in *National Fire Danger Rating System – Weather Station Standards,* NWCG-PMS-426-3, *May 2005 Revision*. The above publications will be used to consistently manage the weather station network utilized by AEU for this plan.

Station site maintenance will include regular site visits no less than once per month (weather permitting) to inspect site conditions, conduct routine weed control, exclusion fence repair, and any other task that is not related to the station operation or technology related to the station.

Station maintenance and repair will be the responsibility of the Forest Technology Systems (FTS) representative that has been assigned to the service area where the station is located. Weather stations owned by other entities will be maintained by those entities. The Camino ECC and the Fire Weather Coordinator will monitor station readings as well as the weekly ASCADS reports to ensure the stations are operating properly. In the event that maintenance or repair is required, the FTS representative will be contacted immediately to repair what ever problem is detected.

Weather Station	*FTS Representative*	*Phone Number*
Mount Zion RAWS	**Tri Vong**	**(800) 548-4264**
Ben Bolt RAWS	**Tri Vong**	**(800) 548-4264**
Pilot Hill RAWS	**Tri Vong**	**(800) 548-4264**
Campo Seco RAWS	**N/A East Bay MUD**	**(209) 772-8338**
CAL FIRE Portable #27	**Tri Vong**	**(800) 548-4264**

D. Program Managers

Fire protection program managers are responsible for establishing appropriate actions based on the fire danger adjective ratings and NFDRS indices. These program managers include Operations, Fire Prevention, Vegetation Management, and Public Affairs/Prevention Specialist. The Camino ECC staff will calculate the NFDRS indices and related components. The program managers are responsible for decision matrix implementation.

III. Fire Danger Inventory

A. The Command Area

The command area for this Operating Plan includes those portions of Amador, El Dorado, Sacramento, and San Joaquin Counties that make up the Direct Protection Area (DPA) of AEU.

B. Fire Activity

Fire activity data from 1998 through 2007 is used for the analysis that supports this Operating Plan. Emergency Activity Reporting System (EARS) and CAIRS data for AEU is used for the analysis phase of this plan utilizing FireFamily Plus software to complete the statistical analysis. EARS and CAIRS data are not collected in a format which can be utilized by FireFamily Plus directly; therefore the Unit Fire Weather Program Coordinator must manually convert data to the Federal format for use with FireFamily Plus. The crosswalk for converting data sets to a format that is compatible with Fire Family Plus is included within the Appendix section of this plan.

Fire occurrence data will needed to be analyzed and validated to ensure there are as few missing fire occurrences and incorrect acreage values as possible. This is especially true in the era of CAIRS. It will be necessary for the Fire Weather Program Coordinator to build the fire data input tables with direct consultation with the Prevention Bureau and the Unit Fire Report File (LE-66's). Instructions on the development of the necessary input data format are included in Appendix F of this plan.

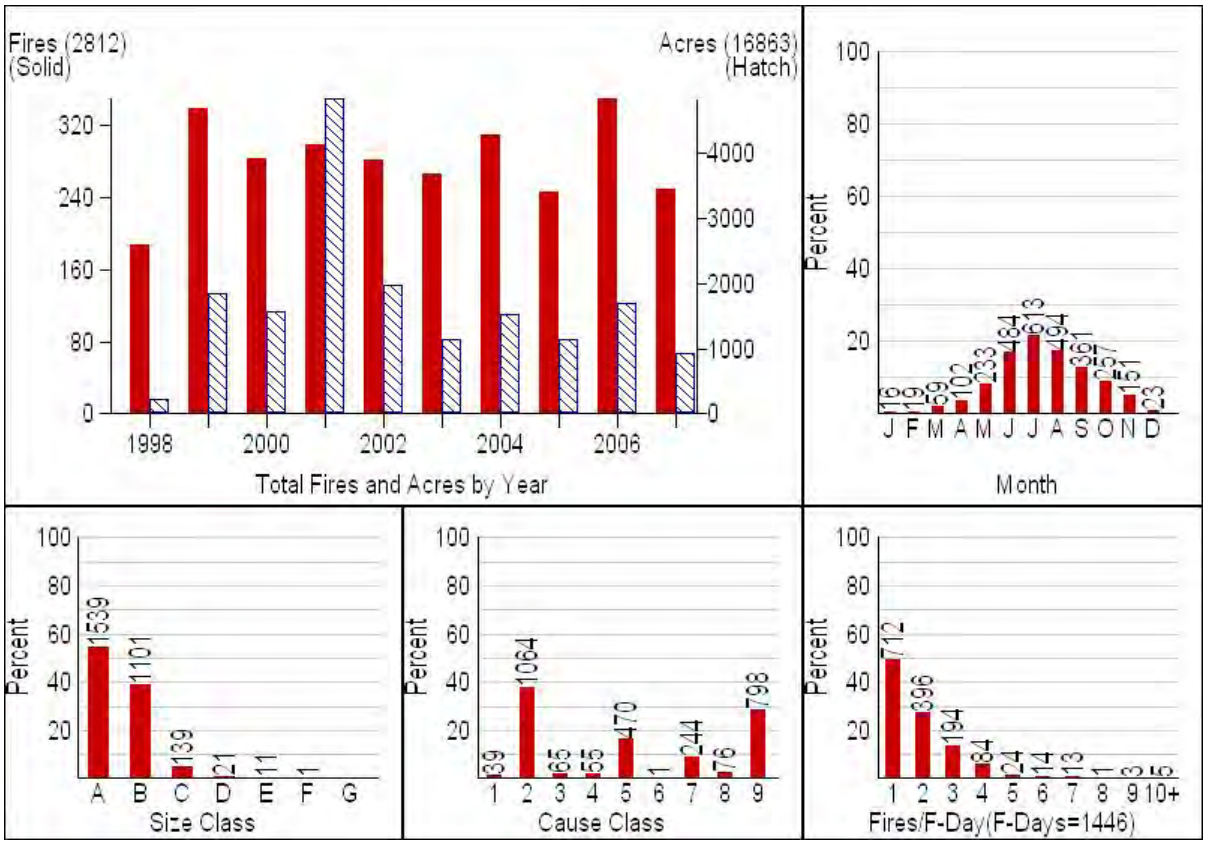
The discrepancy between the Federal and CAL FIRE vegetation fire reporting systems present some interpretation issues as it relates to fire cause codes. The Federal system does not classify fires that have an electrical cause within a separate category. FireFamily Plus only recognizes the ten federal cause codes which would typically place electrical cause ignitions as Miscellaneous. Interpretation of the fire perimeter data for AEU required further analysis to identify electrical fire cause category. The Pre- Fire Management Planning process was utilized to further evaluate the actual number of electrical caused fires. This is due to the impacts that electrical caused fires can have on unit fire business.

The two tables below represent the Cause Class Codes and Size Classes that are utilized in FireFamily Plus.

Cause Class Code	Cause
0	Unknown
1	Lighting
2	Equipment
3	Smoking
4	Campfire
5	Debris Burning
6	Railroad
7	Arson
8	Children
9	Miscellaneous

Size Class Code	Fire Size
A	0.0 - 0.25 Acres
B	0.26 – 9.9 Acres
C	10.0 – 99 Acres
D	100 – 299 Acres
E	300 – 999 Acres
F	1000 – 5000 Acres
G	5000 + Acres

The table below shows AEU fire history as evaluated in FireFamily Plus analysis for the period starting in 1998 and ending in 2007. The data below is unfiltered and represents fires occurring for the entire year. Data will be added annually as it comes available for each subsequent year. Data for these analyses are prepared by FRAP in Sacramento after all fire reporting data has been received from the local Units.



The following points can be drawn from the above data set:

1. The major cause of fires in the Unit is Equipment Use, closely followed by the general category of Miscella neous. The Miscellan eous category will include those fires that do not match any Federal category, most notably Electrical and Undetermined.

2. Over the last 10 years, 94% of fires are less than 10 acres in size.

3. Fire Season for the Unit historically starts early in M ay and ends sometime in October.

4. July and August are historically the busiest months of the year for fire activity.

C. Weather Stations

The AEU has three NFDRS RAWS with historic weather data in the National Interagency Fire Management Integrated Database (NIFMID) which is accessible at the KCFAST link in FamWeb http://fam.nwcg.gov/fam-web/. This data is available for use in daily NFDRS operations.

The AEU ECC has the responsibility for the management and editing of the daily weather observations that are required within the WIMS system. The action of marking the "0" observation closest to 1300 hrs. is required on a consistent basis for the NFDRS decision support tool to function properly. The 1200 hr. observation in WIMS will be observation closest to 1300 hrs. based on the transmission time of each station. **This observation must be edited in WIMS prior to 1430 hrs.**

Weather stations in adjoining Units may be utilized for the selected Fire Danger Rating Areas if they are close enough or representative enough to make fire business decisions. Further evaluation of RAWS in TCU and NEU will be made to determine if data collected from those locations will provide additional correlation value.

Initial contact has been made with the East Bay Municipal Utility District (EBMUD) in Calaveras and Amador Counties concerning the status of the Campo Seco RAWS located above Comanche Reservoir. The Campo Seco RAWS is owned by EBMUD and not CAL FIRE. The station is maintained as a NFDRS station and is available in the WIMS system. EBMUD has given AEU permission to monitor and record the 1300 observations for the NFDRS calculations. AEU will notify EBMUD if the station data indicates repair needs and EBMUD will be maintaining the site as a part of the park operations. Discussions with the TCU ECC will have to occur in the future to develop a plan to make sure the 1300 observation is recorded for the benefit of both Units.

The purpose of NFDRS is to rate the relative fire danger as a worst case scenario for a given Fire Danger Rating Area. Initial examination of the data from Pilot Hill RAWS data indicate that there may be some local influence which sets the weather data less extreme than expected. Evaluation of the statistical fit for fuel models however indicates that Pilot Hill RAWS is very much appropriate for decision making with certain fuel models. The fuel model chosen for the decision making in NFDRS is reflective of the goodness of fit test that was conducted for every fuel model. Statistical analysis and the associated predictive tools used to develop decisions thresholds and associated adjective ratings are difficult to verify when the data is poorly fit. In this case fit is very good and the decision thresholds should support adequate accuracy. Particular attention will be paid to the Pilot Hill RAWS and corresponding indices as the season progresses to ensure the RAWS is appropriate for the fuel model chosen.

One area within the Unit that may be lacking in RAWS influence coverage is the "*Front Country*" in the valley floor at the western edge of the Unit DPA. This area has typically been represented by the Ben Bolt RAWS in the Latrobe area. The significant wind influence created by the summer Delta Push and North wind events is partially lost at the Ben Bolt RAWS. The terrain and vegetation around the station may reduce the effect of the highest potential winds that may be surfacing in the valley floor. This is significant because nearly all of the significant fire spread in the valley floor is wind driven and is lacking the topographic relief or vegetation to cause noticeable friction caused wind speed reductions. The Ben Bolt RAWS may not bring the worst case scenario for the NFDRA, which is dominated by the valley floor topography and fuel type. Further evaluation needs to be made to evaluate the appropriateness of Ben Bolt for the NFDRA that covers the valley floor.

Weather Information Management System (WIMS) Station Catalog Settings

Catalog Information	*Ben Bolt*	*Pilot Hill*	*Mount Zion*	*CAL FIRE Portable RAWS 27*
Station ID	042612	042609	042701	049915
Mean Precipitation	18	25	40	
Latitude	38 35' 27"	38 49' 56.6"	38 23' 27.6"	
Longitude	120 56' 01"	121 00' 36.39"	120 39' 6.3"	
Aspect	Southeast	Flat/None	South	
Elevation	905	1250	2960	
Site	Midslope	Valley Bottom/Flat	Ridgetop/Peak	
Time Zone	Pacific	Pacific	Pacific	
Transmission Time	59:00	58:30	59:30	52:41
Observation Time	1200 hrs.	1200 hrs.	1200 hrs.	1200 hrs.
Danger Rating Area	West	East	East	

Station Photographs

Ben Bolt RAWS
Assigned to the West NFDRA

Station ID: 042612
NESDIS ID: CA21B4C0
Forest Technology Systems FWS-12S

Site Owner: Everett Fox

General Location: Latrobe. Station is located above French Creek Road approximately ¼ mile north of the intersection with Brandon Road. Station is located above the road on a small knoll which overlooks French Creek

Pilot Hill RAWS
Assigned to the East NFDRA

Station ID: 042609
NESDIS ID: CA21D126
Forest Technology Systems FWS-12S

Site Owner: CAL FIRE, State of California

General Location: Pilot Hill. RAWS is located behind CAL FIRE Pilot Hill Fire Station.

Mount Zion RAWS
Assigned as Reserve

Station ID: 042612
NESDIS ID: CA21C250
Forest Technology Systems FWS-12S

Site Owner: CAL FIRE, State of California

General Location: Mount Zion. Station is located adjacent to the Mount Zion lookout on the Mount Zion State Forest.

Contact Frequency:
Primary DTMF Code: 4593
Secondary DTMF Code: 4594

CAL FIRE PORTABLE #27 RAWS

Station ID: 049915
NESDIS ID: CA49774A
Forest Technology Systems Quick Deploy FWS-12S

Contact Frequency: Cal Fire TAC 8
DTMF Code: 1234

D. Vegetation and Fuels

The area covered by this Operating Plan is dominated by three distinctly different vegetation types. The area referred too as the *Front Country* by some Unit personnel is grassy foothill slopes comprised of annual grasses. Occasional oaks or California Gray Pine may be present. This fuel type is characterized by fine, very porous, and continuous herbaceous fuels that seasonally cure. The elevation range of this vegetation type runs from around 100' to 800' elevation.

The second vegetation type is primarily dominated by mixed chaparral and live oak stands. This fuel type is characterized by varying age classes of Chamise, Manzanita, and related chaparral species. Occasional live oak stands will be found intermixed with the chaparral vegetation within drainages and over favorable aspects. The elevation where this vegetation type can be found is as low in elevation as 300' and as high as 2,500'.

The third vegetation type is mixed conifer forest. This fuel type is dominated by conifer forest comprised of Ponderosa Pine, Sugar Pine, Incense Cedar, Black Oak, and Douglas Fir. The vegetation in this area consists of well developed forests with varying degrees of density. The elevation where this vegetation type can be found is between 1500' elevation and the transition to true fir belt at around 6,000' elevation.

The attached NFDRS Fuels Map gives a broad indication of the distribution of the above fuel types. This map is the most current for AEU; however requires professional interpretation and adjustments to account for local knowledge and significant changes due to type conversion. An NFDRS Fuel Model map for the Unit is included in the attached appendices.

E. Topography

AEU is an area of wildly varying topography that begins very near sea level in the Delta Region, runs to the crest of the Sierra Nevada Mountains, and continues to the east side plateau beyond the Sierra crest. The area for which this plan covers is the unit DPA which lies between eastern portions of Sacramento County and the central portions of Amador and El Dorado Counties where the state DPA ends. There are three distinct topographic regions of the plan area; the Front Country, the Foothill Region and the Mountainous Region.

The *Front Country* is within the central valley and is subject to the Delta Weather Influence as well as the fall foehn winds that originate from the north and east during the summer months. The Delta Influence has a duel role during the summer months by providing higher humidity's which limit fire behavior, however, on the other hand the Delta can bring significant increases in wind speed as the weather phenomenon strengthens. This region of the unit is characterized by flat to rolling hills with mild intervening ridges and valleys from the major river systems in the Unit. The terrain in this region presents the mildest topographic relief of all the areas within AEU.

The Foothill Region of the Unit is characterized by continuous rolling hills and intervening canyons with an occasional flat valley bottom. The mountains in this region are typically rolling however some extreme topography can be found at the transition with the more mountainous regions of AEU. Wind interaction with this topography is fairly predictable, increasing turbulence and velocity through canyon bottoms. Wind interaction with this topography can have a significant impact on fire behavior by increasing the effect of the topography when alignment is parallel with wind. Delta wind influence in this region significantly increases fire behavior with canyon alignment or exceedingly high winds.

The Mountainous Region of the Unit can be characterized as a typical Sierra Nevada relief with long roaming ridges that run east to west. Between these major ridges are intervening drainages that vary from steep to nearly vertical. The topography is dominated by the major river systems that run through the region. The Mokelumne River, the Cosumnes River System, and at least two major forks of the American River cut through the Sierra within the unit. These canyons are typically very steep and dominate the wind patterns that flow through them.

Area	*Slopes*	*NFDRS Slope Class*
Valley Floor (*Front Country*)	**gentle**	**1**
Mid Elevation Brush Areas	**moderate**	**2**
Mountainous Areas	**steep**	**3**

NFDRS Slope Class	*Percent Slope Range*
1	**0 - 25%**
2	**26 - 40%**
3	**41 - 55%**
4	**56 - 75%**
5	**Greater than 75%**

F. Climate Class

Climate Class can be utilized to prolong or shorten the Green Up and subsequent Curing of dead fuels. The following table shows the Climate Class and corresponding Green Up periods. The Green Up and curing of fuels within the fuel models can affect NFDRS outputs as the season progresses. Changes to Climate Class can be made to more accurately reflect seasonal vegetation development. The Fire Weather Coordinator will monitor spring green up conditions and be the only person allowed to modify climate class within WIMS.

All of AEU is classified as an NFDRS Climate Class II, rainfall deficit in the summer. Climate class was selected to appropriately model the green up phase of the NFDRS calculations. Other Climate classes didn't respond adequately to model actual conditions, however it will not exclude other Climate Classes if seasonal spring conditions warrant.

NFDRS Climate Class	*Green Up Period*
I	**7 Days**
II	**14 Days**
III	**21 Days**
IV	**28 Days**

G. Fire Danger Rating Areas (FDRA)

Two fire danger rating areas are used to define fire danger in the AEU. These two areas capture the major differences in the Unit without drawing too much detail for the scale required for NFDRS evaluation and decision outputs. State Highway 49 was utilized as the Fire Danger Rating Area break point to provide an easy reference to Unit personnel and cooperators.

1. **FDRA CAAEU EAST** (DPA east of State Highway 49) The Timber and heavy brush region of the Unit DPA is that of Sierran Mixed Conifer and Chaparral. The area is generally managed for timber however there has been a significant increase in development and public use. Heavy dead fuels have a common presence throughout the fuel profile. Vegetation consists of Chaparral consisting of Chamise, Manzanita and Live Oak and Sierran Mixed Conifer/Ponderosa Pine. NFDRS fuel model J is used for this area and is represented by the Pilot Hill RAWS.

2. **FDRA CAAEU WEST** (DPA west of State Highway 49) Elevation below 800' is considered the Annual Grass region of the DPA. This area is dominated by annual grasslands with scattered oaks and oak groves. Small areas of heavy brush are present within the area; however, not in quantities large enough to change the area to some other fuel type. NFDRS fuel model A best represents this area and will be used for purposes of this plan. The area is represented by the Ben Bolt RAWS.

IV. Fire Danger Indexes and Fire Business

The following list represents the array of NFDRS indices that are used by the NFDRS system to quantify Fire Danger:

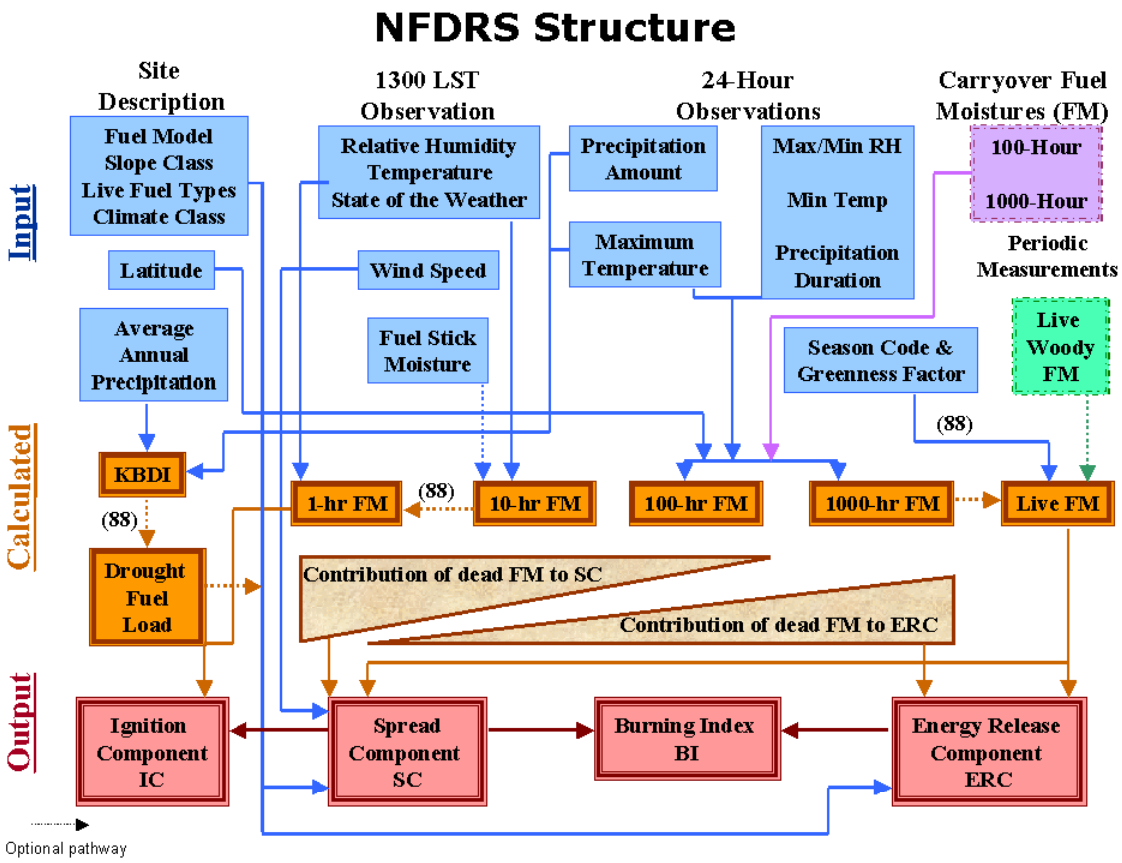
Spread Component (**SC**) is an estimate of the spread of a fire at its head. It is projecting the potential rate of a fire's spread at its head in feet per minute under the assumed weather, fuels, and topographic conditions associated with the fire danger rating area.

Ignition Component (**IC**) is an expressed probability that a firebrand will cause an actionable fire, one that requires suppression action.

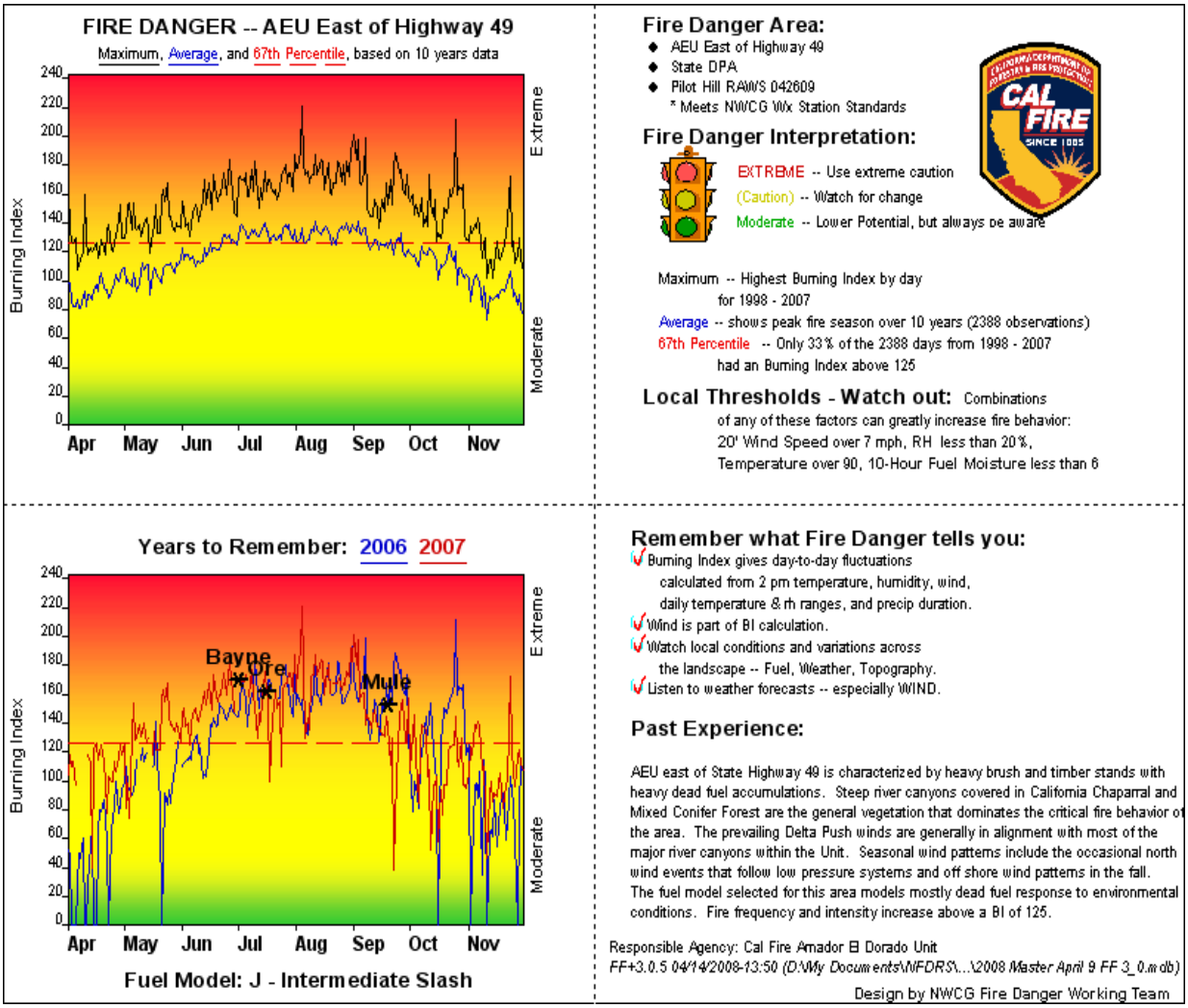
Burning Index (**BI**) is a number that relates the contribution of a fire's behavior in containing the fire. Containment difficulty is directly related to fireline intensity (BTU's/ft/sec). This is the heat release along the fire perimeter at its head. BI is an index that rates fire danger related to potential flame length over a fire danger rating area.

Energy Release Component (**ERC**) is a number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of the fire. It evaluates the contribution of various fuel loadings represented mathematically in the NFDRS fuel models.

*Thousand Hour Time Lag (**1000-hr FM**)* In addition to the above NFDRS output indices, the intermediate output which models the 1000 time lag fuel moisture content can also be utilized as a fire danger index. This long term trending output can be a valuable tool in evaluating the larger fuels within an area where larger fuels make up the primary fuel bed indicator.

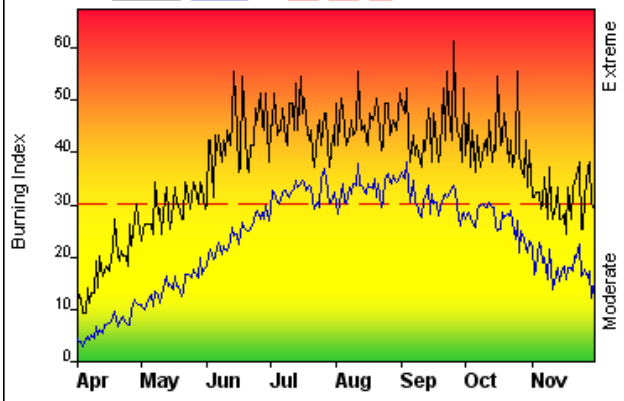


The above diagram gives the basic structur e of the NFDRS and the various inputs, intermediate calculations, and the final in dex outputs. The flow chart shows the process model and how the indic es are impacted by the various input s.


FIRE DANGER -- AEU East of Highway 49
Maximum, Average, and 67th Percentile, based on 10 years data
Burning Index
240
220
200
180
160
140
120
100
80
60
40
20
0
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Extreme
Moderate
Fire Danger Area:
AEU East of Highway 49
State DPA
Pilot Hill RAWS 042609
* Meets NWCG Wx Station Standards
Fire Danger Interpretation:
EXTREME -- Use extreme caution
(Caution) -- Watch for change
Moderate -- Lower Potential, but always be aware
Maximum -- Highest Burning Index by day for 1998 - 2007
Average -- shows peak fire season over 10 years (2388 observations)
67th Percentile -- Only 33% of the 2388 days from 1998 - 2007 had an Burning Index above 125
Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior: 20' Wind Speed over 7 mph, RH less than 20%, Temperature over 90, 10-Hour Fuel Moisture less than 6
Years to Remember: 2006 2007
Bayne
Fire
Mule
Fuel Model: J - Intermediate Slash
Remember what Fire Danger tells you:
Burning Index gives day-to-day fluctuations calculated from 2 pm temperature, humidity, wind, daily temperature & rh ranges, and precip duration.
Wind is part of BI calculation.
Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
Listen to weather forecasts -- especially WIND.
Past Experience:
AEU east of State Highway 49 is characterized by heavy brush and timber stands with heavy dead fuel accumulations. Steep river canyons covered in California Chaparral and Mixed Conifer Forest are the general vegetation that dominates the critical fire behavior of the area. The prevailing Delta Push winds are generally in alignment with most of the major river canyons within the Unit. Seasonal wind patterns include the occasional north wind events that follow low pressure systems and off shore wind patterns in the fall. The fuel model selected for this area models mostly dead fuel response to environmental conditions. Fire frequency and intensity increase above a BI of 125.
Responsible Agency: Cal Fire Amador El Dorado Unit
FF+3.0.5 04/14/2008-13:50 (D:\My Documents\NFDRS\...\2008 Master April 9 FF 3_0.mdb)
Design by NWCG Fire Danger Working Team

FIRE DANGER -- AEU West of Highway 49

Maximum, Average, and 65th Percentile, based on 10 years data



Fire Danger Area:

- AEU West of Highway 49
- State DPA
- Ben Bolt RAWS 042612
  * Meets NWCG Wx Station Standards

Fire Danger Interpretation:

EXTREME -- Use extreme caution

(Caution) -- Watch for change

Moderate -- Lower Potential, but always be aware

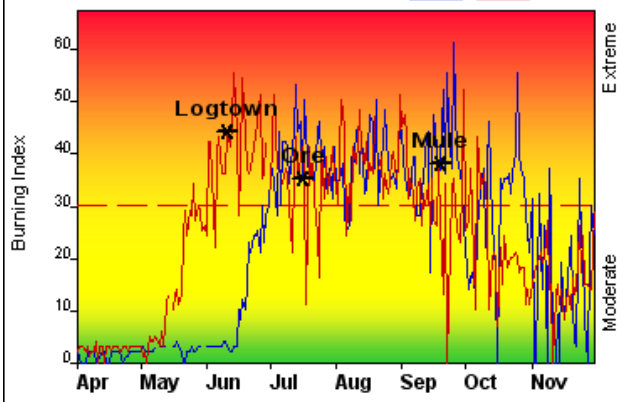
Maximum -- Highest Burning Index by day for 1998 - 2007

Average -- shows peak fire season over 10 years (2333 observations)

65th Percentile -- Only 35% of the 2333 days from 1998 - 2007 had an Burning Index above 30

Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior: 20' Wind Speed over 8 mph, RH less than 20%, Temperature over 95, 1-Hour Fuel Moisture less than 4

Years to Remember: 2006 2007



Fuel Model: A - Western Annual Grasses

Remember what Fire Danger tells you:

- Burning Index gives day-to-day fluctuations calculated from 2 pm temperature, humidity, wind, daily temperature & rh ranges, and precip duration.
- Wind is part of BI calculation.
- Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- Listen to weather forecasts -- especially WIND.

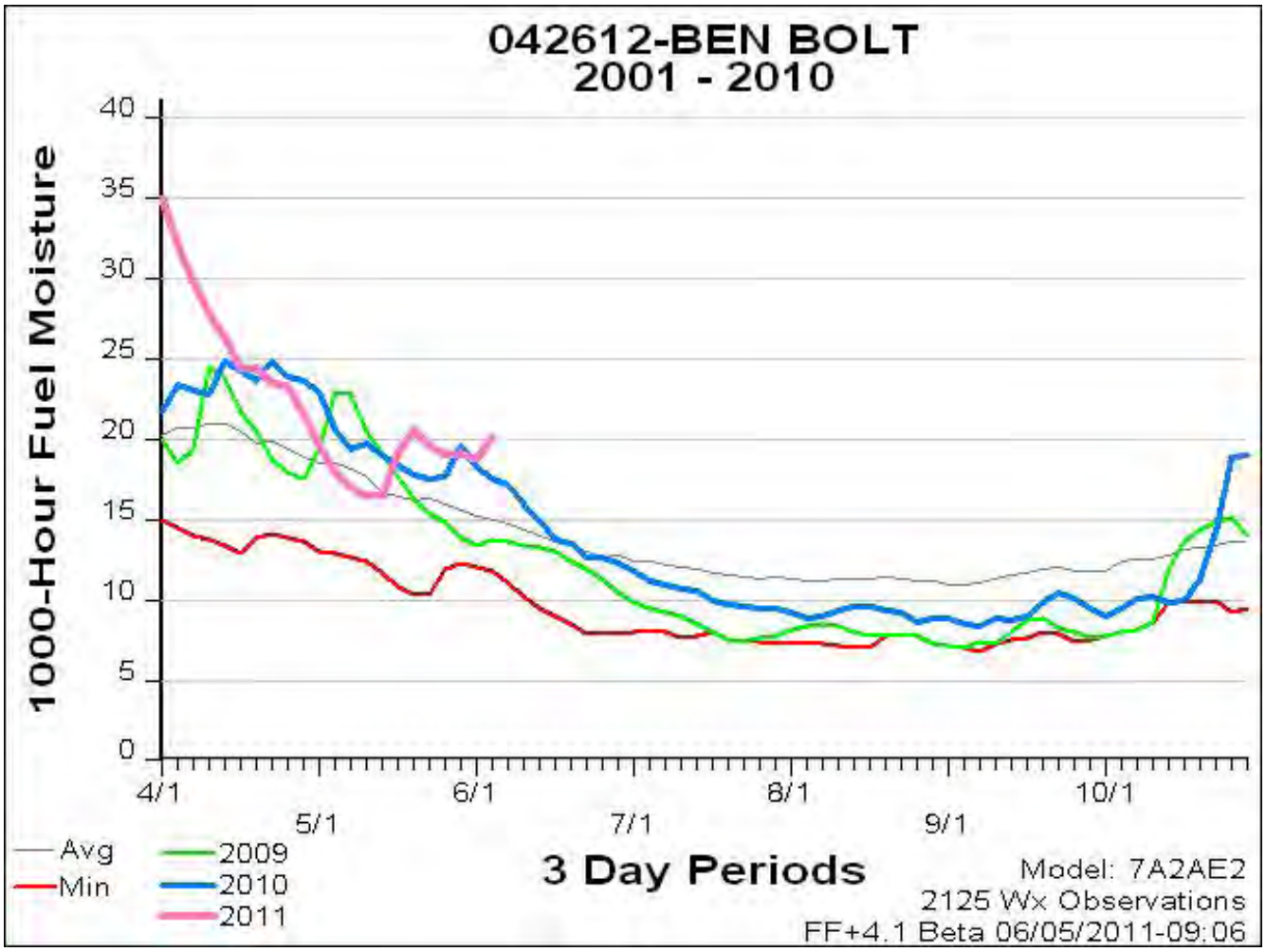
Past Experience:

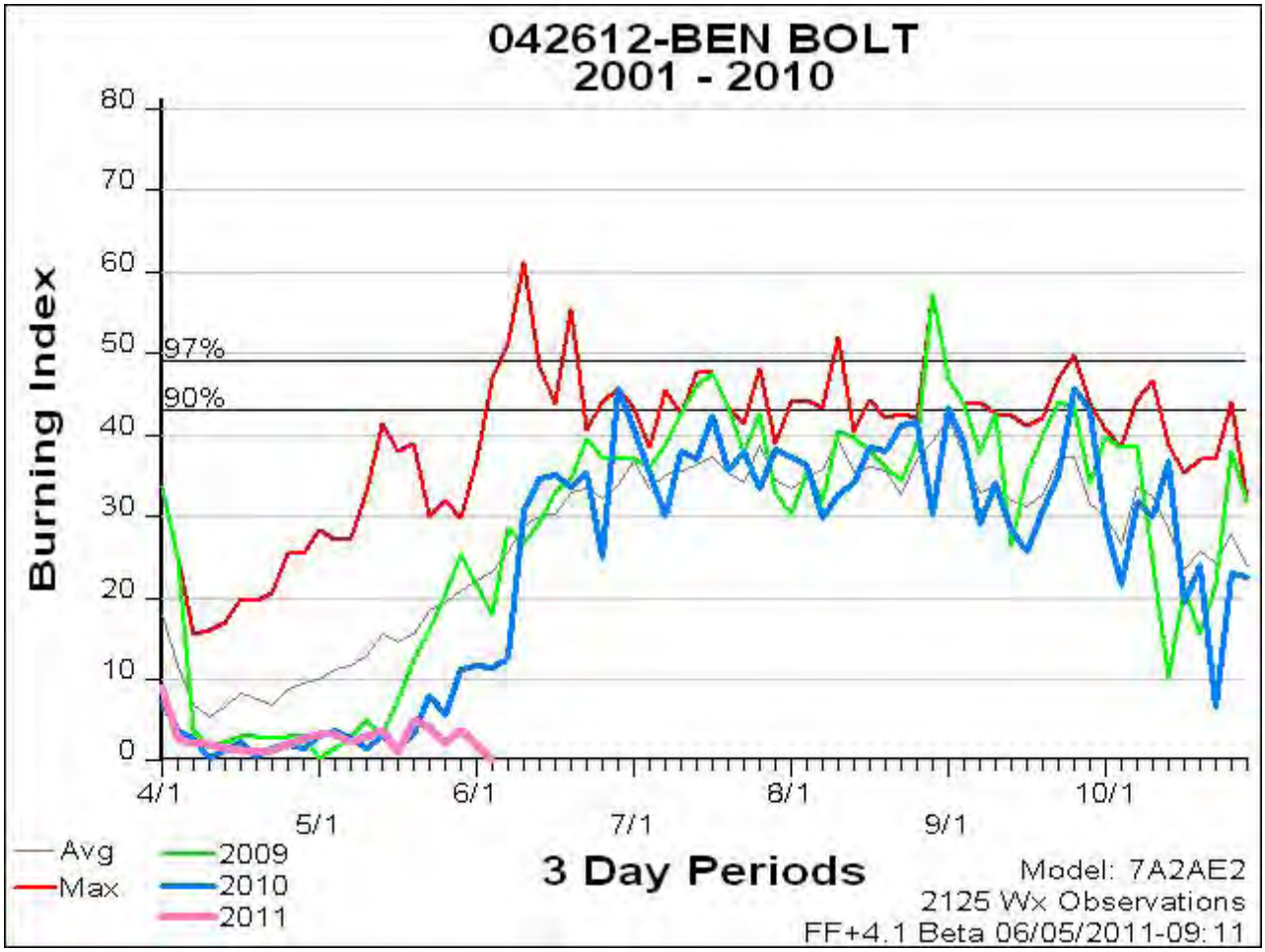
AEU west of State Highway 49 is dominated by a grass fuel type. The primary driver of fire behavior is fine flashy fuels and wind. Winds generally prevail from the west and southwest with the Delta Push weather influence. Seasonal wind patterns include ocassional north wind events that follow low pressure systems and off shore wind patterns that typically surface during the late summer and fall months. Fire growth and intensity are heavily dependent on wind. Monitor the fire ground for erratic wind shifts and gusty winds, especially in areas that have little topographic relief or limted brush and tree cover. Fire frequency and intensity increase above a BI of 30.

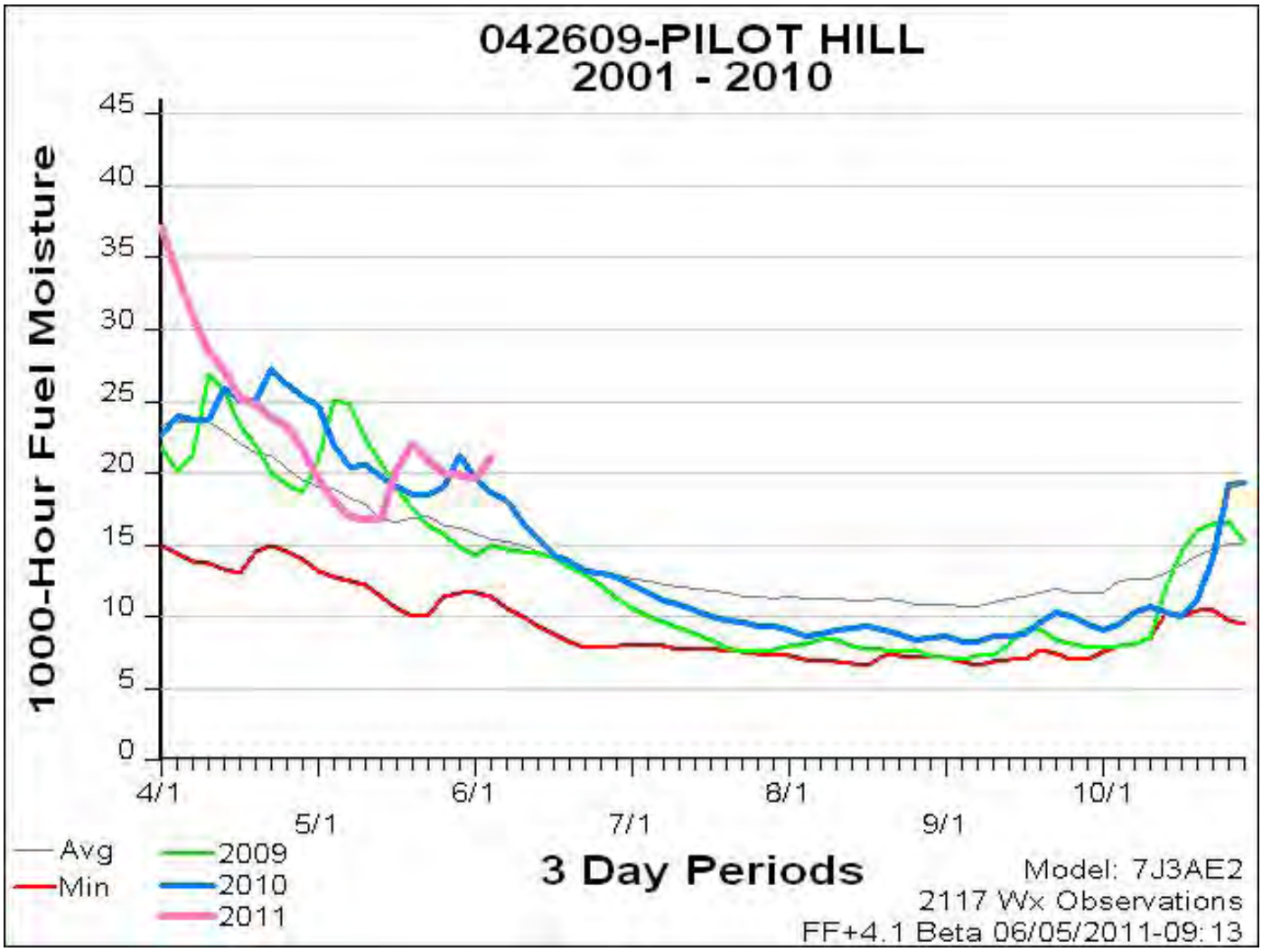
Responsible Agency: Cal Fire Amador-El Dorado Unit

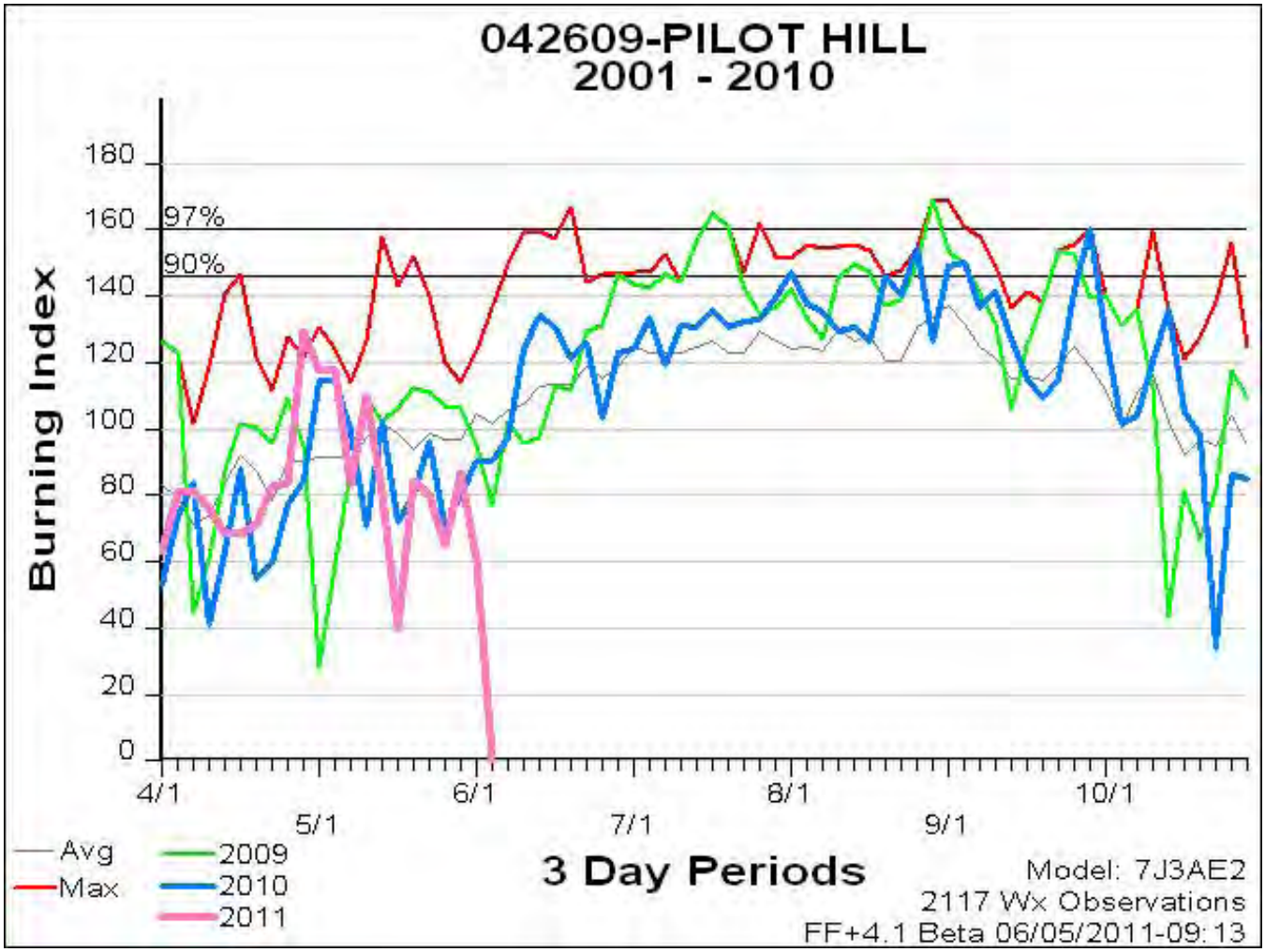
FF+3.0.5 04/14/2008-13:51 (D:\My Documents\NFDRS\...\2008 Master April 9 FF 3_0.mdb)

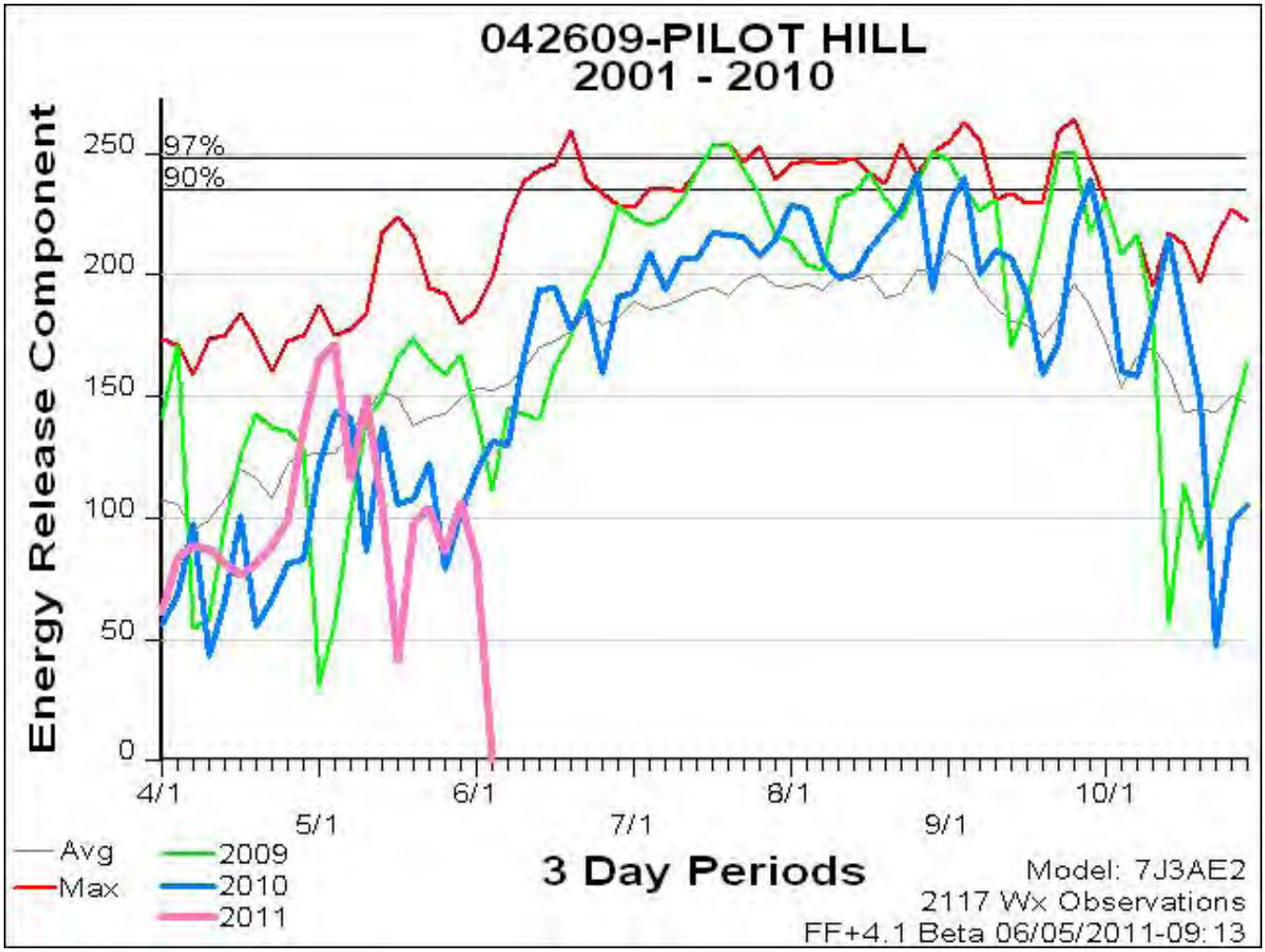
Design by NWCG Fire Danger Working Team


042612-BEN BOLT
2001 - 2010
1000-Hour Fuel Moisture
40
35
30
25
20
15
10
5
0
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Min
2009
2010
2011
3 Day Periods
Model: 7A2AE2
2125 Wx Observations
FF+4.1 Beta 06/05/2011-09:06


042612-BEN BOLT
2001 - 2010
Burning Index
80
70
60
50
40
30
20
10
0
97%
90%
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Max
2009
2010
2011
3 Day Periods
Model: 7A2AE2
2125 Wx Observations
FF+4.1 Beta 06/05/2011-09:11


042609-PILOT HILL
2001 - 2010
1000-Hour Fuel Moisture
45
40
35
30
25
20
15
10
5
0
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Min
2009
2010
2011
3 Day Periods
Model: 7J3AE2
2117 Wx Observations
FF+4.1 Beta 06/05/2011-09:13


042609-PILOT HILL
2001 - 2010
Burning Index
180
160
140
120
100
80
60
40
20
0
97%
90%
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Max
2009
2010
2011
3 Day Periods
Model: 7J3AE2
2117 Wx Observations
FF+4.1 Beta 06/05/2011-09:13


042609-PILOT HILL
2001 - 2010
Energy Release Component
250
200
150
100
50
0
97%
90%
4/1
5/1
6/1
7/1
8/1
9/1
10/1
Avg
Max
2009
2010
2011
3 Day Periods
Model: 7J3AE2
2117 Wx Observations
FF+4.1 Beta 06/05/2011-09:13

AEU Adjective Rating Definitions

Fire Danger information in AEU is important to decision makers outside the Unit. Those decision makers may represent the general public, local fire district, industry or other departmental decision makers at the regional or statewide level. The following Adjective Fire Danger Rating definitions will be used for reporting the relative fire danger ratings to decision makers that will need the applicable fire danger rating information for their respective operations. Adjective rating definitions are calculated on all observations that are edited within the WIMS system. These can be calculated for any observation that has been transmitted by the RAWS to the NIFMID database. Adjective ratings are defined by a calculated Staffing Level and five Ignition Component classes as defined by the 90 th and 97th percentile weather using Burning Index as the reference index. Those two values have been agreed upon by wildland agencies in California for use with the Adjective Class ratings. These values will be loaded into the WIMS Station Catalogs so Adjective Ratings can be determined throughout the day as well as forecasted for the next day. AEU will utilize the model which best represents the RAWS for the corresponding calculations.

Adjective Rating Settings in WIMS

				Percentile Values for May to October		
NFDR Area	**Weather Station**	**Fuel Model**	**Index**	**90'th**	**97'th**	**Number of years**
EAST	**Pilot Hill** (042609)	**J**	**BI**	**139**	**152**	**14**
WEST	**Ben Bolt** (042612)	**A**	**BI**	**38**	**43**	**16**
East *(Reserve)*	**Mount Zion** (042701)	**J**	**BI**	**134**	**148**	**16**

Following are the terms and definitions for adjective fire danger as defined by the National Wildfire Coordinating Group (NWCG) Fire Danger Working Team in 2000.

Fire Danger Rating and Color Code	Description
Low (L) **Green**	Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.
Moderate (M) **Blue**	Fires can start from most causes but, with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
High (H) **Yellow**	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
Very High (VH) **Orange**	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long range spotting and fire whirlwinds when they burn in heavier fuels.
Extreme (E) **Red**	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or conifer stands may be unmanageable while the extreme burning conditions last. Under these circumstances the only effective and safe control actions are on the flanks until the weather changes or the fuel loading decreases.

Fire Weather Watches and Red Flag Warnings

NWS offices issue Fire Weather Watches and Red Flag Warnings for critical fire weather patterns that contribute to extreme fire danger and/or fire behavior.

Fire Weather Watch is used to alert agencies to the high potential for development of a Red Flag event in the 12-72 hour time frame. The Watch may be issued for all or selected portions of a fire weather zone or zones. A watch may be issued in the first 12 hour time period only for an expected dry thunderstorm event.

Red Flag Warning is used to inform agencies of the imminent or actual occurrence of Red Flag conditions. A Red Flag Warning is issued when there is high confidence that Red Flag criteria will be met within the next 24 hours, or if those criteria are already being met.

Criteria for Red Flag Warnings/Fire Weather Watches

Dry Lightning - A lightning event that is not accompanied by enough precipitation to significantly wet fuels that have been identified as critically dry. Significant precipitation is defined as ranging from .05 inches for grass or brush fuels to .15 inches for closed-canopy timber/heavy fuels. Watches and warnings will be issued when dry lightning is expected to be widespread. Isolated events or events of short duration (i.e., events which start dry but become wet within an hour or two) do not need warnings but will be headlined in the forecast.

Wind and Humidity - Wind and humidity criteria are geared toward those situations which may result in rapid spread of wildfires. Because topography and vegetation play a big role in this, several sets of criteria are used across California. Where possible, issuance criteria have been meshed with those used in adjacent states to meet the needs of agencies whose jurisdictions cross state lines. Criteria are listed in the Wind/Humidity Table below.

California Wind/Humidity Table

Area Description	NWS Fire Weather Zones	Criteria	
Southern California desert area excluding the Lower Colorado River Valley	226-228, 230, 232, 260-262	Relative Humidity ≤ 15% and wind gusts ≥ 35 mph for 6 hours or more, assuming fuel conditions are critical.	
Lower Colorado River Valley	229,231	Relative Humidity ≤ 15% with sustained winds ≥ 20 mph or wind gusts ≥ 35 mph for 3 hours or more.	
Antelope Valley and SE Kern County Deserts	298, 299, 259	Relative Humidity ≤ 15% and sustained (20-foot) winds ≥ 25 mph for a duration of 8 hours or more.	
Southern California from mountains westward	234-258, 288-297,547,548	234-258, 288-297, **547,548** Relative Humidity ≤ 15%, with sustained winds ≥ 25 mph and/or frequent gusts ≥ 35 mph (duration ≥ 6 hours).	288-297**Or** Relative Humidity ≤ 10% (duration ≥ 10 hours) regardless of wind.
Northern California East of Cascade/Sierra Crest and Western Great Basin including the Modoc Plateau	214, 270-273, 278, 284, 285	Three hours of wind gusts ≥ 30 mph and Relative Humidity ≤ 15% (≤ 20% Tahoe Mgmt Basin).	**Or** Three hours of wind gusts ≥ 20 mph and Relative Humidity ≤ 10% **for Fire Weather Zones 284-285 only**.
Northern California West of the Cascade/Sierra Crest	006, 201-204, 211-213, 215-221, 263, 264, 266-269, 276, 277, 280-282, 505-513, 516-518, 528-530	Refer to Wind/RH RFW Decision Matrix for Northern California West of the Cascade/Sierra Crest.	

Wind/RH RFW Decision Matrix for Northern California West of the Cascade/Sierra Crest

- Matrix assumes daytime 10-hour fuel moisture (NFDRS obs time) is ≤ 6%, annual grasses have cured, and no wetting rain (greater than 0.10 inch) has fallen in the past 24 hours.
- The sustained wind refers to the standard 20-foot, 10 minute average fire weather wind speed.
- The wind event should be expected to last for at least 8 hours to qualify for a Red Flag warning. [This guidance was developed for foehn wind events, which normally exceed 12 hours duration, and may last as much as 3-5 days].
- a **'W'** in the matrix indicates that the forecaster should consider a warning.

Relative Humidity	Sustained Wind 6-11 mph	Sustained Wind 12-20 mph	Sustained Wind 21-29 mph	Sustained Wind 30+ mph
Daytime Minimum RH 29-42% and/or Nighttime Maximum RH 60-80%				W
Daytime Minimum RH 19-28% and/or Nighttime Maximum RH 46-60%			W	W
Daytime Minimum RH 9-18% and/or Nighttime Maximum RH 31-45%		W	W	W
Daytime Minimum RH < 9% and/or Nighttime Maximum RH < 31%	W	W	W	W

Red Flag Warnings and Fire Weather Watches will remain in effect through the expiration time noted in the forecast, or until canceled or upgraded

Red Flag Warnings and Fire Weather Watches are available via WIMS, from the California Fire Weather web page (http://www.wrh.noaa.gov/sto/cafw/) and the web site of the issuing NWS office. Links to all forecasts and NWS office web pages can be found on the National Fire Weather Page at http://fire.boi.noaa.gov/.

V. Fire Danger Based Decisions

For NFDRS to be an effective tool for decis ion making the Unit mu st identify the fire management problems and answer the following questions:

1. What are the fire occurrence patterns in AEU?

2. What type of fire prob lems are common to AEU and which of those have the greatest significance to the various managers within the Unit?

3. Can NFDRS outputs be used to identify critical dec ision thresholds that will aid AEU management staff in the development and implem entation of management control mechanisms that could result in fewer or smaller fires?

4. Who is affected by these management control mechanisms and how muc h control do we have over the affected parties?

5. What is the appropriate NFDRS component or index that will best fit each management control mechanism selected?

Target Group Decision Master Checklist Master
(example)

Description:

This section describes in general terms, the purpose of the decision.

Control:

Who does decision affect		*Level of Control and Communication*	
[ ] Agency Personnel [ ] Industry [ ] Public	This section describes the "public" being controlled by the decision. Generally, most control can be exercised over our own people, some control over industry people subject to regulation and the least control over the general public.	[ ] High [ ] Medium [ ] Low	The ability of the "public" to respond to changing conditions is the issue. This is often driven by the communication method. We usually have quick communication with our own people and infrequent communication with the public.

Decision Action:

[ ] Use Adjective Levels

Adjective	*Action*
Low **Medium** **High** **Very High** **Extreme**	Indicate the general action that should happen at each adjective level. Indicate who is responsible for the action.

[ ] Use Custom Decision Criteria

If the general adjective ratings are not appropriate for the decision, then a "custom" decision criteria can be set up. Consider the control issues described above when selecting an index to drive the decision. For example, Ignition Component and Spread Component are volatile and difficult to predict. Burning Index is a little more stable and is usually based on more predictable factors. Energy Release Component tends to be slow to respond to short term fluctuations in weather and is therefore more stable and predictable.

NFDR Area	Weather Station	Index to use	Index Values	Action

A. Incident Dispatch

Control:

Incident Dispatch is simply stated the initial incident response level for resource allocation for incidents within the Unit. This decision typically sets the tone for an effective initial attack response to wildland fires as well as for times when command center personnel have a report of a wildland fire and a location, but possibly little additional information prior to the first Report-On-Conditions. The intent is to send sufficient resource strength given the potential fire behavior for that time. The intent is also to save time, money, and resources by not sending resources that probably won't be needed. Specific resource amounts by dispatch level are identified in CAD for each response area.

Control:

Who does decision affect		*Level of Control and Communication*	
		[X] Extreme	**Notification to duty chief for dispatch level decision.**
[X] Agency Personnel	**Initial attack forces USFS ENF Local Government Fire Agencies (all counties)**	**[X] High**	**Radio communication at all times. Alpha Pager Links in CAD**
[ ] Industry		**[ ] Medium**	
[ ] Public		**[ ] Low**	

Decision Action:

[ ] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	
Extreme	

[X] Use Custom Decision Criteria

Decision criteria for AEU was developed using different breakpoint criteria for each NFDRA within the Unit. Within NFDRA East, Burning Index (BI) will be used exclusively for setting the corresponding Dispatch Level throughout the day. For the NFDRA West there will be a custom matrix utilized which will correlate Burning Index (BI) and Spread Component (SC) to set the Dispatch Level throughout the day. The tables below represent the thresholds that will be utilized in both NFDRA's within AEU.

The afternoon dispatch level will be set by actual indices calculated in WIMS or with the NFDRS calculator. Forecasted indices are available at approximately 1630 hrs. for use the next day and will be available as a planning tool for the next day's operation. Daytime actual calculations will be used to modify dispatch level every two hours or as needed throughout the day.

NFDRA EAST

Pilot Hill RAWS
Fuel Model J

		Index Break Points			
Weather Station	**Index**	**Low**	**Medium**	**High**	**Extreme**
Pilot Hill	**BI**	**0-95**	**96-125**	**126-160**	**<161**

NFDRA WEST

Ben Bolt RAWS
Fuel Model A

Dispatch Level					
		Burning Index			
		0-20	21-33	34-47	< 48
Spread Component	0-35	LOW	MEDIUM	HIGH	EXTREME
	36-65	MEDIUM	MEDIUM	HIGH	EXTREME
	66-95	HIGH	HIGH	HIGH	EXTREME
	< 96	EXTREME	EXTREME	EXTREME	EXTREME

B. Cooperating Fire Agencies, Adjacent Units, Law Enforcement, and Local OES

Description:

All of the groups listed below bring fire control resources, organizational support, or overhead resources to bear in the event of a wildland fire in AEU. This support will place additional strains on their own jurisdictional responsibilities as it relates to delivering the services they provide. The Fire Danger Adjective Rating will allow them to make preparations for impacts that may occur as a result of a wildland fire within AEU.

Control:

Who does decision affect		*Level of Control and Communication*	
[X] Agency Personnel	**Amador, El Dorado, Sacramento, and Alpine County Fire Agencies Local OES Reps. USFS TMU, ENF, & HTF BLM CAL FIRE TCU, NEU, HQ/CFA**	**[X] High**	**Local Unit or Sacramento ECC's contact various offices via alpha page or email.**
[ ] Industry		**[ ] Medium**	
[ ] Public		**[ ] Low**	

Decision Action:

[X] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	**Alpha Page or Email Local Cooperators.**
Extreme	**Alpha Page or Email Local Cooperators.**

[ ] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	**Weather Station**	**Index**	**Low**	**Medium**	**High**

Land Management Agencies (other than USFS & BLM)

Description:

Land management organizations typically have some fire prevention responsibility related to public utilization of the organization's lands. Notification of the Fire Danger Adjective Rating will give them the necessary information for the control of public activity relating to the use of open fires as well as road and trail access through wildland areas.

Control:

Who does decision affect		*Level of Control and Communication*	
[X] Agency Personnel	**Bureau of Reclamation Calif. Dept. of Parks and Rec. Folsom Lake and Auburn State Rec. Area EID Sly Park and Forebay**	**[ ] High**	
[ ] Industry		**[X] Medium**	**Local Unit or Sacramento ECC's contact various offices via alpha page or email.**
[ ] Public		**[ ] Low**	

Decision Action:

[X] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	**Alpha Page or Email Cooperators.**
Extreme	**Alpha Page or Email Cooperators**

[ ] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	**Weather Station**	**Index**	**Low**	**Medium**	**High**

C. PG&E, SMUD, Cal Trans, & Water Delivery Agencies

Description:

Utilities, CalTrans, Local Water Agencies, and Private Industry will modify some of their daily operational activities based on the fire danger. This is primarily a fire prevention measure to eliminate risk sources during very high and extreme fire danger conditions. Sacramento Command Center staff retrieves the predicted fire danger from Regions and then communicates this information to the state offices of PG&E, SMUD, and CalTrans. Those entities have the opportunity to change their operational plans based upon the relative fire danger in work areas. The predicted adjective ratings will be used to determine the need to make contact with the appropriate entities. See Notification Matrix.

Control:

Who does decision affect		*Level of Control and Communication*	
[ ] Agency Personnel		**[ ] High**	
[X] Industry	**PG&E, SMUD, CalTrans, El Dorado Irrigation District, Amador Water Agency**	**[X] Medium**	**Local Unit or Sacramento ECC's contact various offices via alpha page or email.**
[ ] Public		**[ ] Low**	

Decision Action:

[X] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	**Alpha Page or Email Cooperators.**
Extreme	**Alpha Page or Email Cooperators**

[ ] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	**Weather Station**	**Index**	**Low**	**Medium**	**High**

D. Public and Fire Safe Council Notification

Description:

This is the general, once daily description of the fire danger. The intent is to raise awareness of the potential fire danger in simple easy to communicate terms. This is primarily a fire prevention tool to alert the public to be fire safe. The main contact for this notification will be the El Dorado and Amador Fire Safe Councils. The actual (real time) and predicted (forecasted) adjective ratings will be used to determine the need to make contact with the appropriate entities. See Notification Matrix.

Control:

Who does decision affect		*Level of Control and Communication*	
[ ] Agency Personnel		**[ ] High**	
[ ] Industry		**[ ] Medium**	
[X] Public	**General public, local citizens, and tourists. Includes agency personnel and industry but not specifically aimed at their activities.**	**[X] Low**	**Low relative control and relatively good communication. Notification by phone, page, or email.**

Decision Action:

[X] Use Adjective Levels, Forecasted and Actual

Adjective	*Action*
Low	
Medium	
High	
Very High	**Alpha Page or Email Fire Safe Councils**
Extreme	**Alpha Page or Email Fire Safe Councils Prevention Specialist will prepare a Public Service Announcement for distribution.**

[ ] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	**Weather Station**	**Index**	**Low**	**Medium**	**High**

E. Draw Down Staffing Patterns

Description:

Occasionally it is nec essary to hold empl oyees on duty or call employees back from days off to staff equipment when other resource s are out of county or committed to an incident within the unit. When fire potential is severe enough, it may be required to take action before a new incident occurs. T he question frequently arises about the need to fight the fire on hand; or fight the fire we might have. This plan provides the starting point for such decis ions and the decis ion to initiate staffing patterns should be made with consideration of Draw Down Level and relative fire danger.

AEU Draw Down Levels				
	Blue Book	Draw Down Level		
	Assigned	1	2	3
Engines	*13*	*11*	*7*	*3*
Crews	*9*	*7*	*5*	*2*
Dozers	*2*	*2*	*1*	*1*

Control:

Who does decision affect		*Level of Control and Communication*	
[X] Agency Personnel	**Initial attack suppression employees and conservation camp crews.**	**[ ] High**	
[ ] Industry		**[X] Medium**	**Personnel management policy establishes the minimum call back period.**
[ ] Public		**[ ] Low**	

Decision Action:

[X] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	Consider the need to initiate local staffing pattern.
Extreme	The need for local staffing pattern highly likely.

[ ] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	Weather Station	Index	Low	Medium	High

F. Initiation of the Burn Ban

Description:

Every year AEU is tasked with making a determination to cancel permitted open burning within the DPA. This can be a very contentious decision because it's the role of the local unit to encourage homeowners to remove hazardous vegetation while still allowing them to burn within conditions that allow the safe use of fire. The absence of an adequate mechanism, other than open burning, to dispose of vegetation created while maintaining clearance standards presents an administrative quandary. On one hand you want the public to manage the vegetation near their homes, while on the other we need to protect the community from the use of fire during those times when conditions can cause escape or large fire development. NFDRS lends itself to making these kinds of decisions; however, it is recognized that it will only be one of the many factors that are considered to make the final decision.

This decision is also one that relates directly to the credibility of the local unit. The burn ban, once initiated, cannot be reversed until the end of fire season. The Level of Control and Ability to Communicate are very low at best. The ability to communicate with the public in a timely and efficient manor makes this decision one of the more difficult administrative actions undertaken each year. The most appropriate index or intermediate calculation to use will be one that demonstrates a long term trend throughout and does not fluctuate wildly over the course of the season.

Control:

Who does decision affect		*Level of Control and Communication*	
[ ] Agency Personnel		**[ ] High**	
[ ] Industry		**[ ] Medium**	
[X] Public	**Homeowners and other members of the community who utilize open burning to dispose of vegetation.**	**[X] Low**	**Press release to the local publications and contact with the local Air Quality Management Districts to change recordings.**

Decision Action:

[ ] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	
Extreme	

[X] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	Weather Station	Index	Low	Medium	High
EAST	Pilot Hill Model J	ERC			125

At the point where the ERC at Pilot Hill RAWS reaches 125, *AFTER GREEN UP is complete*, for Fuel Model J, Consideration of the Unit Burn Ban will be made by the Unit Chief, Prevention Bureau, and Operational Staff.

G. Timber Operations

Description:

The fire prevention program in aimed at preventing ignitions in forested areas when the potential for large and damaging fires becomes excessive. The daily NFDRS forecast which is available in WIMS every afternoon will provide the necessary planning tool. This information will be transmitted to local operators with the means to receive the information after the forecasted indices have been made available in WIMS.

Control:

Who does decision affect		*Level of Control and Communication*	
[ ] Agency Personnel		**[ ] High**	
[X] Industry		**[X] Medium**	**Larger timberland owners have contact with employees through radio or cell phones.**
[ ] Public		**[X] Low**	**Smaller contract operators do not typically have frequent contact with timberland owners.**

Decision Action:

[X] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	**Zion RAWS: Contact local timber operators via Alpha Page or Email**
Extreme	**ZION RAWS: Contact local timber operators via Alpha Page or Email**

[ ] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	**Weather Station**	**Index**	**Low**	**Medium**	**High**

H. Lightning

Description

Lightning activity within the area covered by this plan can occasionally present a significant ignition source during the summer and fall months when fuels conditions are most critical. Lightning activity can cause large numbers of ignitions over wide areas which overwhelm local resources engaged in detection and suppression. Pre-Planning for possible lightning activity is critical to ensure the unit is successful in mitigating lightning caused wildfire events.

Lightning events come in two basic forms; those not accompanied by precipitation known as "dry", and those that come with precipitation. Both types present unique fire suppression problems. Dry lightning events present immediate ignitions that are brought to life by the dry fuels conditions and high winds that result from the associated thunderstorms. These events have the potential to cause large rapidly moving wildfires. Lightning events with precipitation are still a significant threat, often long after the event has passed. Ignitions can remain seeded in damp fuel beds until the warmer and drier weather brings them to life. The delay in detection can extend the impact of these events for days.

Control:

Who does decision affect		*Level of Control and Communication*	
[X] Agency Personnel	**CAL FIRE AEU and the El Dorado National Forest**	**[X] High**	**Interagency Emergency Command Center**
[ ] Industry		**[ ] Medium**	
[ ] Public		**[ ] Low**	

Decision Action:

[ ] Use Adjective Levels

Adjective	*Action*
Low	
Medium	
High	
Very High	
Extreme	

[X] Use Custom Decision Criteria

See the attached Lightning and Complex Incident Plan in Appendix H of this Plan.

VI. Notification Matrix For Predictions

Predictions can come in any number of formats and can come from various sources. The two basic types of predictions that will be used as a part of this plan will be that created from WIMS and those created from the National Weather Service. WIMS directions are included as an appendix to this plan and the National Weather Service Fire Weather Products can be found at the following site: http://www.wrh.noaa.gov/sto/cafw/index.php In addition to the products listed above, there is a weekly Smoke Management Conference Call which will include Predictive Services staff as well as representation form operational resources. This call is generally intended for prescribed fire users however it is an excellent venue to discuss other issues. The call is Mondays at 1300 hrs. Phone number 877-874-5440; Pass Code 357238#. During the Monday call it will be determined whether the call will also be held on other days during the week. A summer meteorological conference call is held at the same number and pass code as needed when there is a red flag warning.

Action/ Notify	Battalion Chiefs Division Chiefs Fire Weather Coordinator	Prevention Duty Officer and Staff	Duty Chief	Stations, Camps, Shops	Local Government USFS & BLM County OES State Parks Duty Chief/Officer	Timber Harvesting Operations	Fire Safe Council and Public Notification
Event/ Situation							
Fire Weather Watch Red Flag Warning or Lightning Event	Page prior to reading weather	Page prior to reading weather	Page prior to reading weather	Read AM and PM wx BC's responsible for station contact and confirmation	Page LG Duty Chiefs & Other Agencies	Page Prevention Duty Officer	Page Prevention Duty Officer Prepare PSA
Very High Adjective Prediction	Page prior to reading weather	Page prior to reading weather	Page and notify when giving 1600 predictios	Read adjective predictions at end of PM weather	Page LG Duty Chiefs & Other Agencies	Page Prevention Duty Officer who will notify cooperators.	
Extreme Adjective Prediction	Page prior to reading weather	Page prior to reading weather	Page and notify when giving 1600 predictions	Include adjective predictions at end of PM weather	Page LG Duty Chiefs & Other Agencies	Page Prevention Duty Officer who will notify cooperators.	Page Prevention Duty Officer Prepare PSA
NWS Winter Storm Warning			Page prior to reading advisory over AEU Local	Read advisory over AEU Local	Page LG Duty Chiefs & Other Agencies		

VII. Needs Assessment

A. Weather Station Sites

New weather station sites will not be necessary for AEU fire business and NFDRS system support. The scale of NFDRS doesn't require additional RAWS to be effective. Placement of the RAWS is more likely an issue of review for AEU.
Evaluation of the area referred to as the Front Country will need further review to ensure the Ben Bolt RAWS is adequate in capturing the valley bottom fire associations. Weather conditions are often more extreme in this area and an analysis is required to determine the need for further changes in the RAWS network. CAL FIRE Portable RAWS 08 will be at the Van Vleck Ranch in Rancho Murrieta to test NFDRS weather parameters.

B. WIMS & NFDRS Training

WIMS and NFDRS training needs to be a priority for AEU ECC staff. The ECC is the anchor point for the implementation of this Fire Weather Operating Plan. Communication Operators, ECC Captains, ECC Chief, and Management will need to make training a priority. Further effort should be made to identify candidates for the Advanced National Fire Danger Rating course offered at NAFRI in Tucson, Arizona. This course is the final in the NFDRS series which provides the student with the tools to create and manage an NFDRS Fire Danger Rating Operating Plan.

C. Quality Assurance and Analysis

As is the case with any new tool, this Fire Danger Rating Operating Plan must undergo continuous quality assurance and analysis to ensure the plan is functioning as needed to fulfill operational objectives. As this product is rolled out to the field it will require input from responding field staff to validate the appropriateness of the decisions that are made throughout the season. The evaluation must be as objective as possible and address the problems with a given incident or administrative decision in an honest manner. The field staff will be asked to provide written feedback throughout the first year to refine the decision making process.

D. Contact Updates

Contacts not included as part of the CAD at the Camino ECC will have to be reviewed annually.

VIII. **Appendix**

A. Annual Review

Annual review of this plan will be made by t he Unit Fire Weather Coordinat or, Operations Chief, ECC Chief, and the Unit Chief prior to Decemb er 31st of every year. Fire analy sis will be conducted and reviewed by the same individuals annually as the data is available to evaluate the indices and decision thresholds. This will be completed after the CAIRS d ata has been converted to a format that can be utilized with Fire Family Plus.

B. Maps

1. Unit and Direct Protection Area Map

2. Fire Danger Rating Area Map

3. Weather Station Map

4. Vegetation Map

C. Daily Operations

D. WIMS Procedures

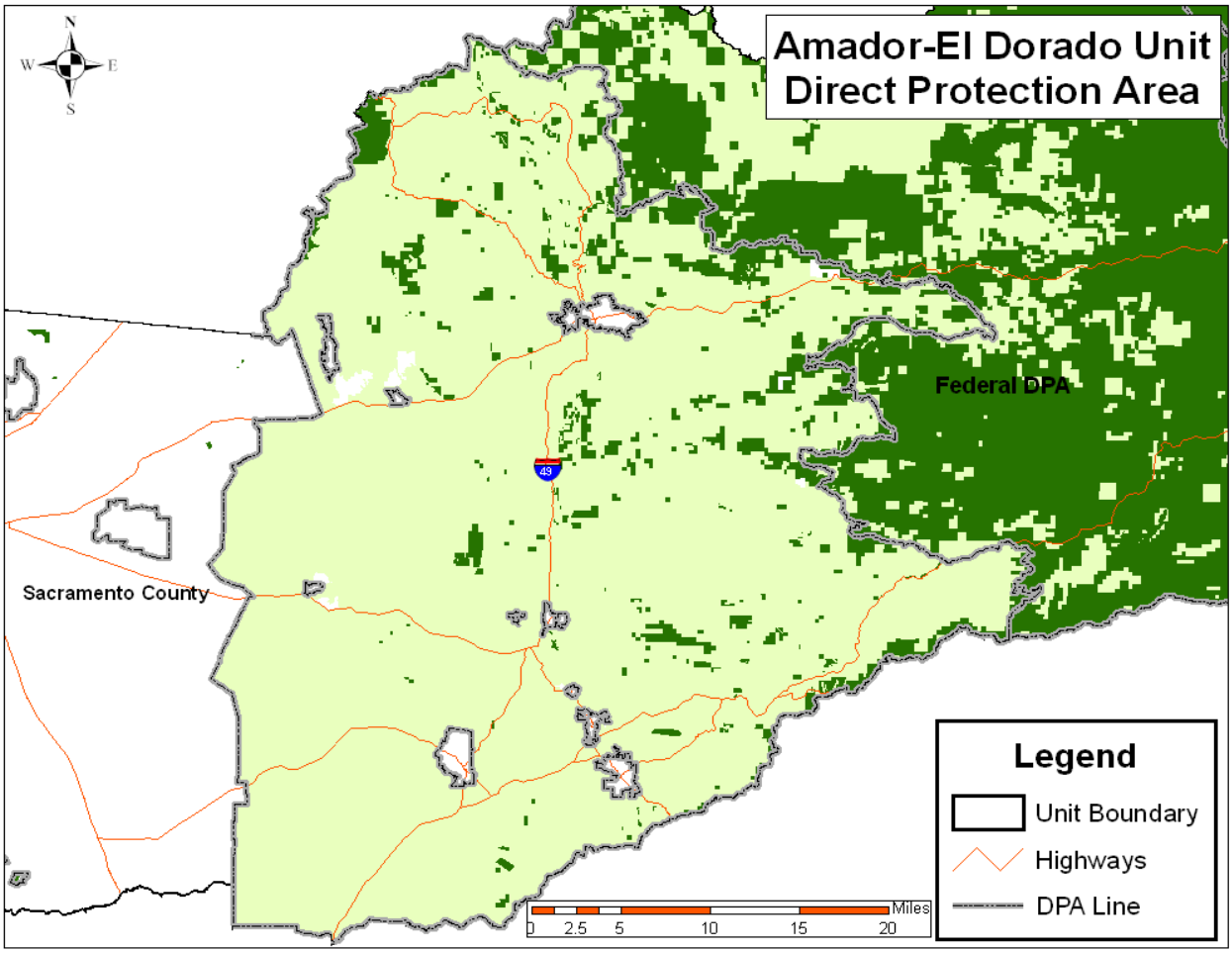
E. WIMS State of the Weather and Wet Flag Definitions

F. Data Import Procedures for CAL FIRE Fata into Fire Family Plus

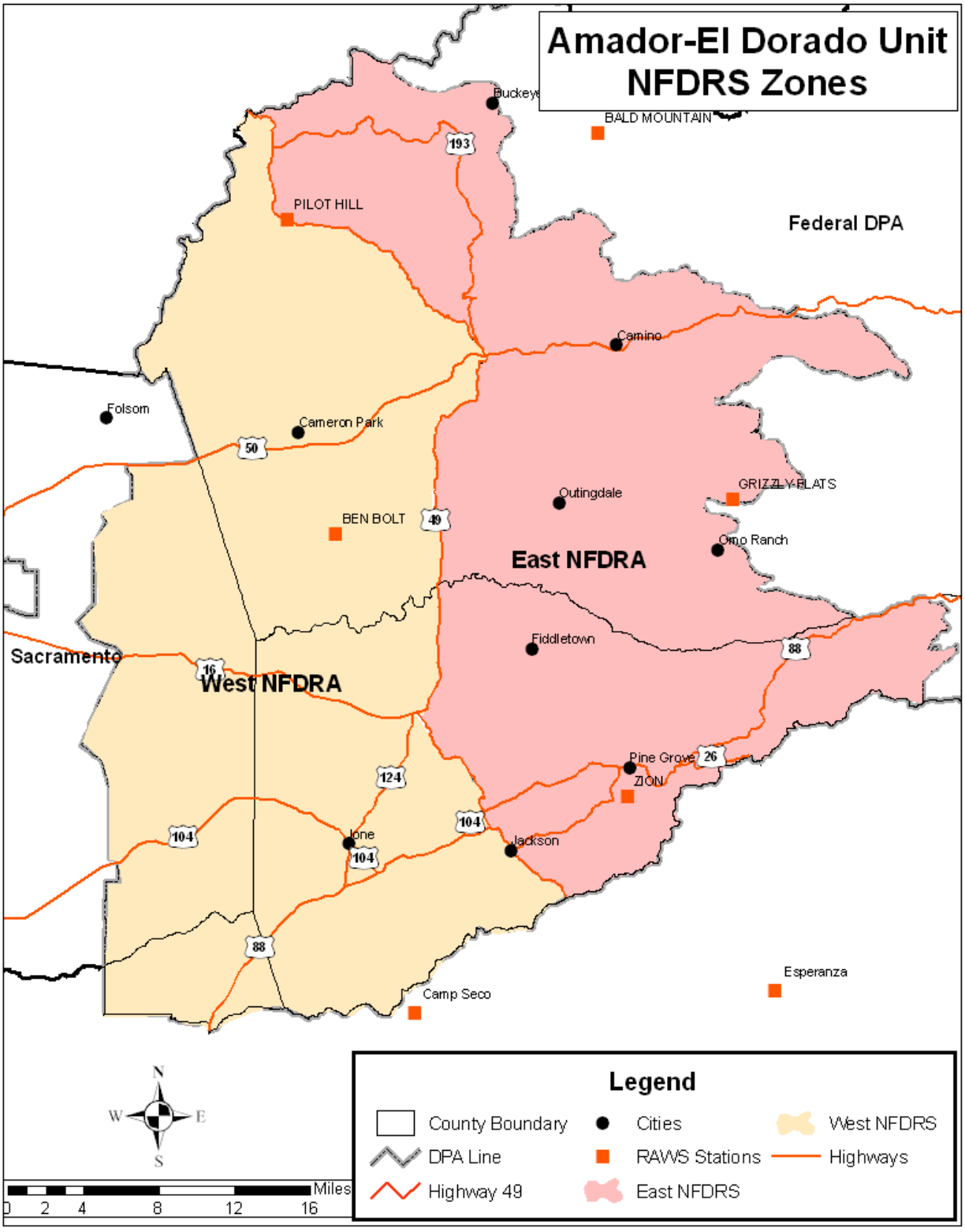
G. Quality Assurance

H. Lightning and Complex Incident Plan

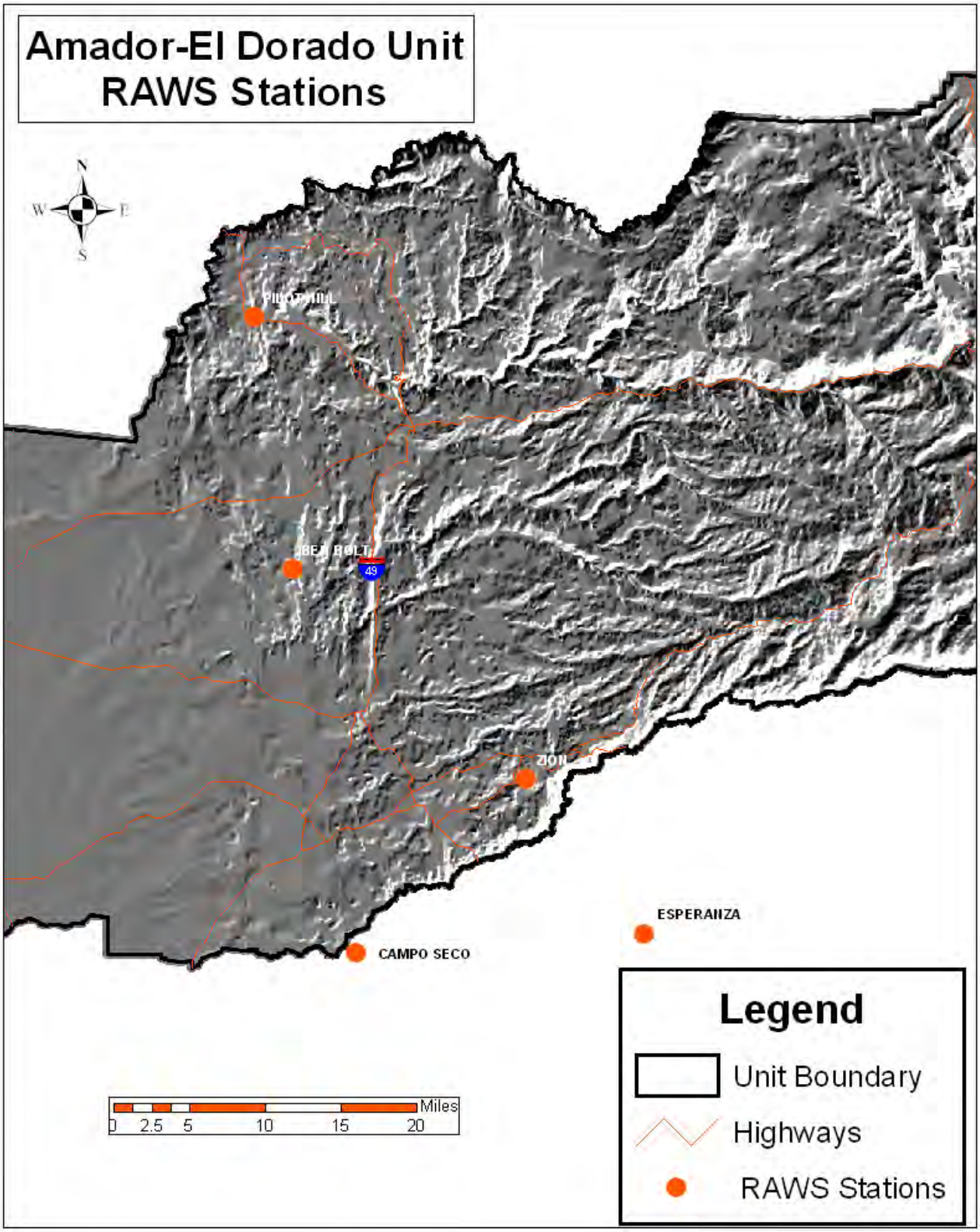
Unit Map/DPA


Amador-El Dorado Unit
Direct Protection Area
Federal DPA
Sacramento County
49
N
W
E
S
Legend
Unit Boundary
Highways
DPA Line
Miles
0 2.5 5 10 15 20

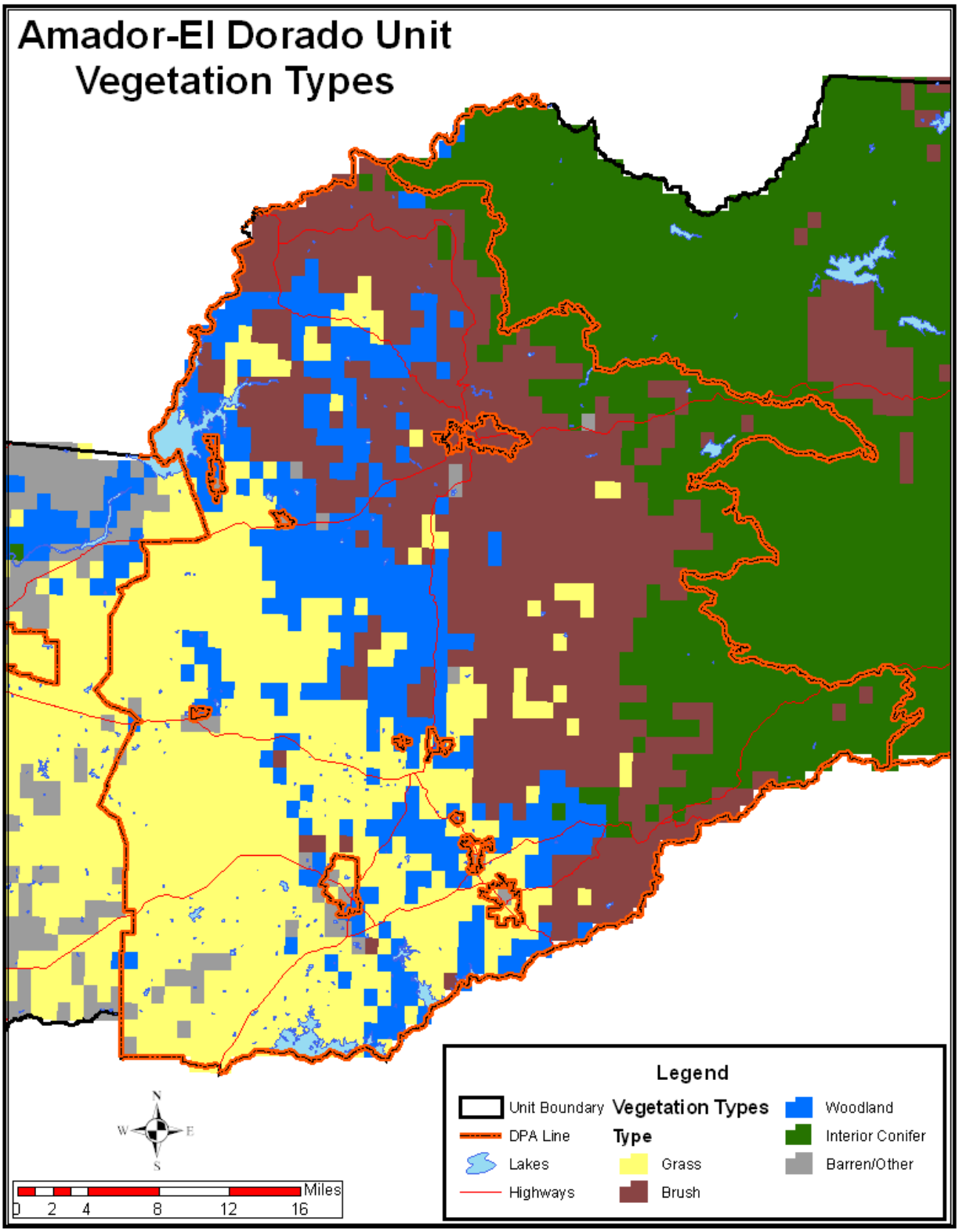
National Fire Danger Rating Areas



RAWS Map


Amador-El Dorado Unit
RAWS Stations
N
W
E
S
PILOT HILL
49
ESPERANZA
CAMPO SECO
Miles
0 2.5 5 10 15 20
Legend
Unit Boundary
Highways
RAWS Stations

Vegetation Type Map


Amador-El Dorado Unit
Vegetation Types
Legend
Unit Boundary
DPA Line
Lakes
Highways
Vegetation Types
Type
Grass
Brush
Woodland
Interior Conifer
Barren/Other
N
W
E
S
Miles
0 2 4 8 12 16

Appendix C

Daily Operations

ECC Operations

0900 hrs.	Review WIMS for forecasted indices, review Notification Matrix for possible notifications to users.
1000 hrs.	Broadcast Weather Forecast and Last Night's Predicted Indices with Morning Report over AEU Local Net
1030 hrs. observation*)	First Dispatch Level Calculation (Use latest
1230 hrs.	Second Dispatch Level Calculation
1330 hrs.	Edit the 1200 Observation in WIMS for all stations in AEU and make third Dispatch Level Calculation.
1530 hrs.	Fourth Dispatch Level Calculation (1400 Observation)
1600 hrs.	Tomorrow's Predicted Indices Should be Available in WIMS. Review thresholds and Notification Matrix. Begin Notifications for tomorrows predicted Adjective Ratings.
Sundown + 2 Hours Tomorrow)	Last Dispatch Level Calculation (Reset for

*** If the observation has not arrive in WIMS than use the latest available observation. Data transmission times for AEU RAWS are all after the 58th minute of the hour. Therefore the 1200 hr. observation is actually transmitted to the satellite at 1258 hrs. This makes 1200 hr. observation the closest observation to the 1300 hour, which is the target time for NFDRS. Always remember the observation time is rounded DOWN to the whole hour.**

Daily Dispatch Level and Adjective Rating Data Sheet

Date:_____

Forecasted Indices and Adjective Ratings (WIMS forecast from yesterday, read with morning weather)

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

1200 Hr. Observation From WIMS

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

Afternoon Supplemental Calculations

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

Supplemental Dispatch Level and Adjective Rating Data Sheet

Date:________________________

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

Appendix D

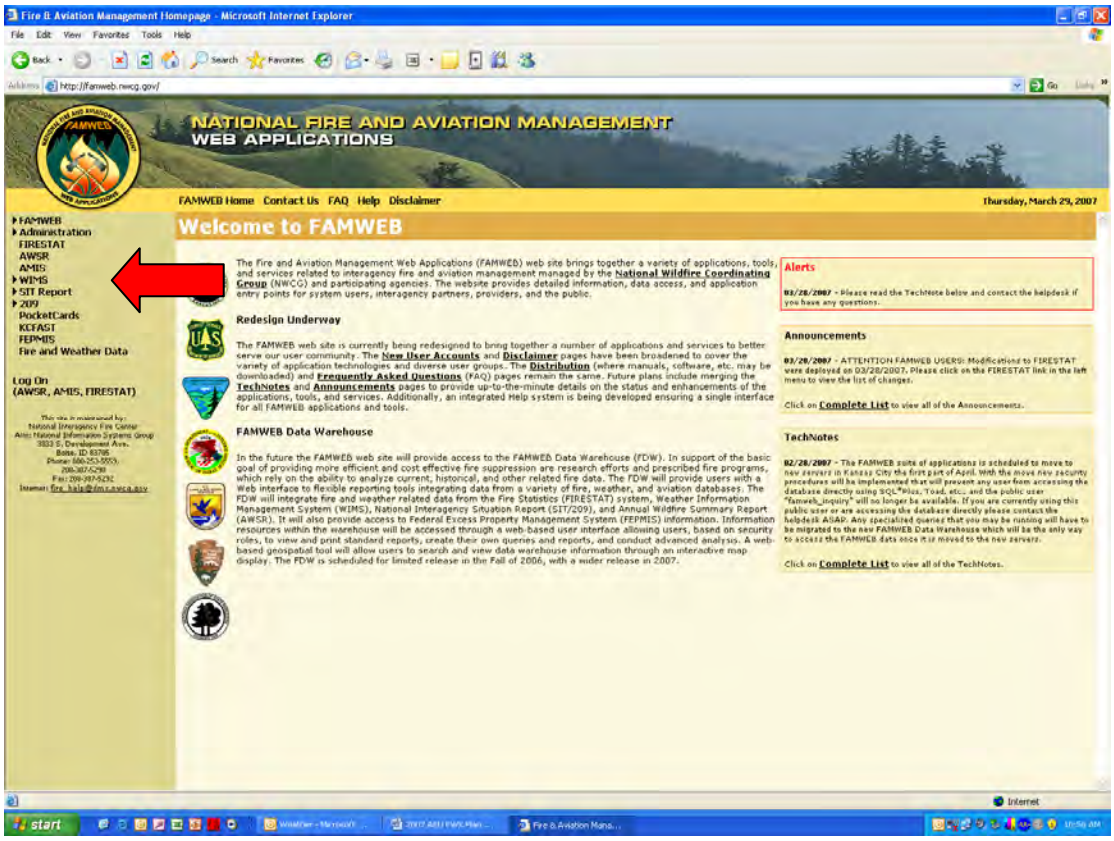
WIMS Procedures

Step by Step WIMS Directions for the ECC, Editing OBS

Step 1: Start *Internet Explorer*

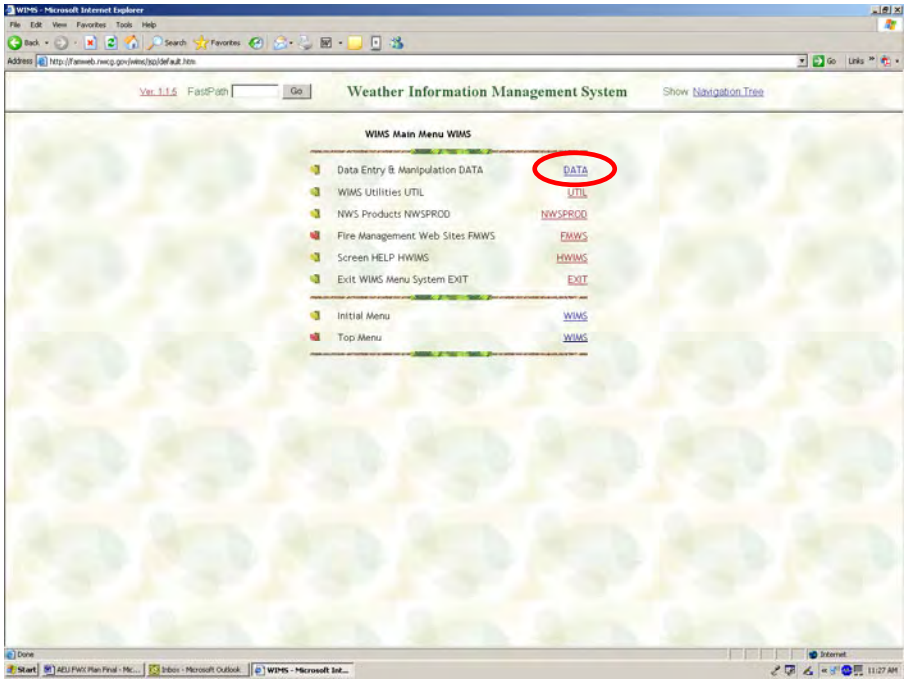
Step 2: Type http://fam.nwcg.gov/fam-web/ in the Address Bar and hit Go.

Step 3: The screen shown below will appear. Click WIMS.

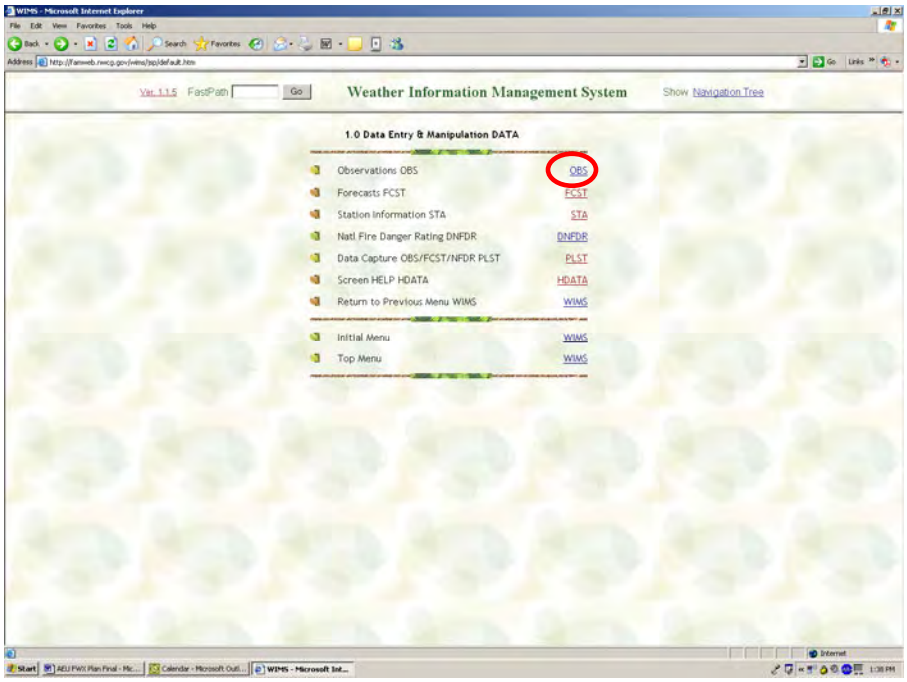


Step 4: Enter User Name and Password

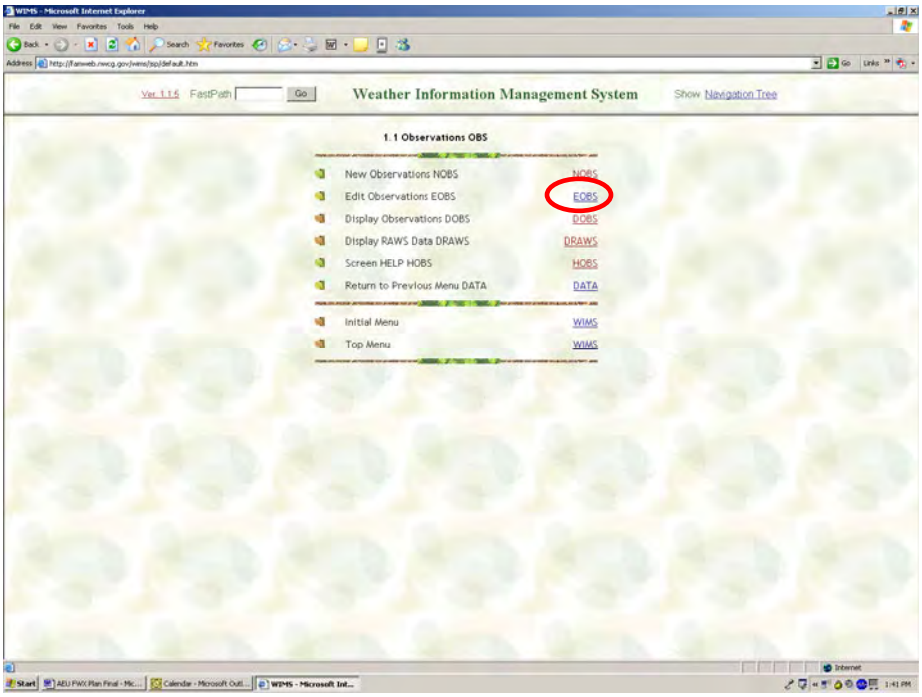
Step 5: WIMS Main Menu Click "DATA"



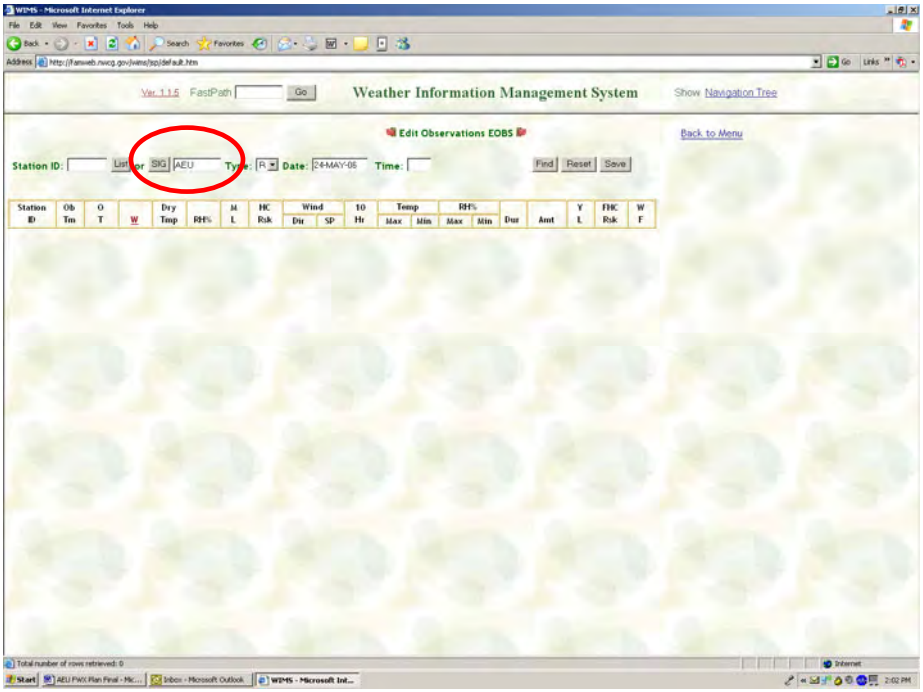
Step 6: WIMS Main Menu Click "OBS"



Step 7: WIMS Main Menu Click "OBS"

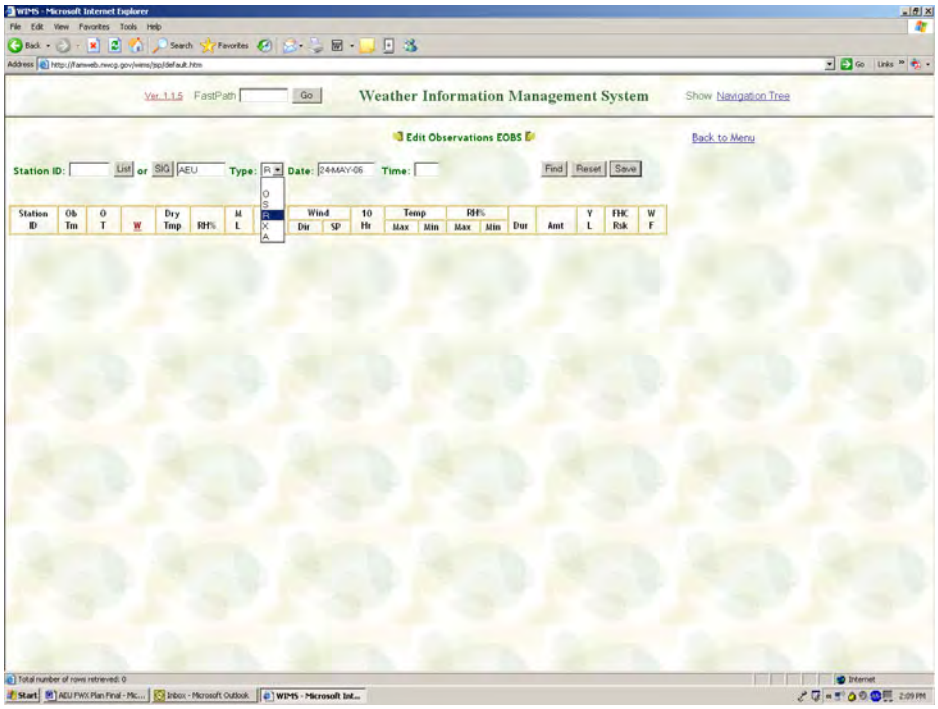


Step 8: WIMS Edit Observations Screen

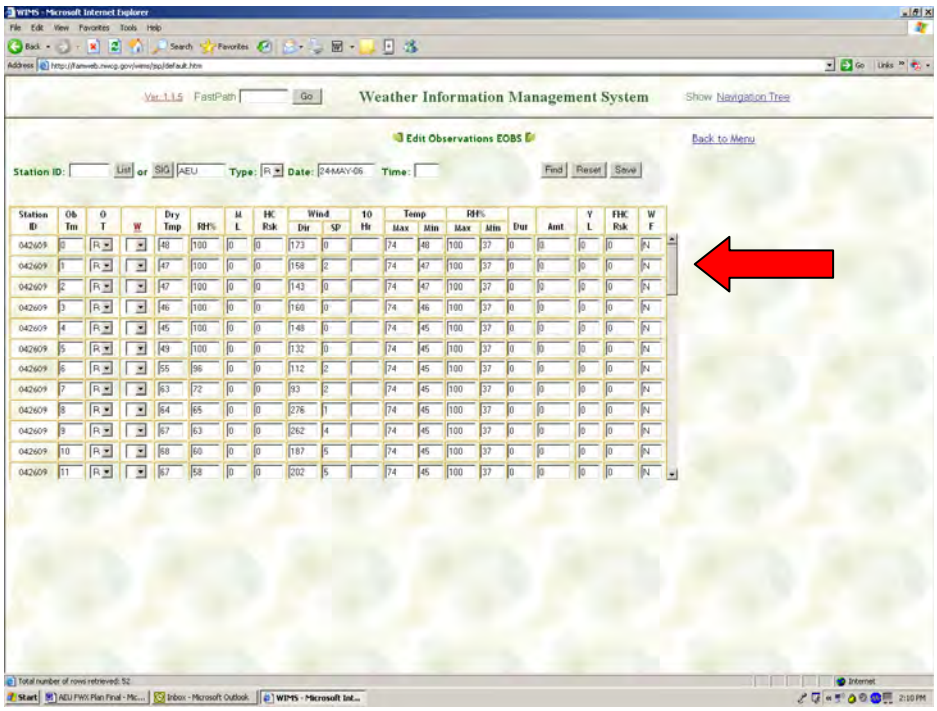


The SIG cell should be "AEU", if it doesn't, click the SIG button and scroll down to it to fill the cell properly.

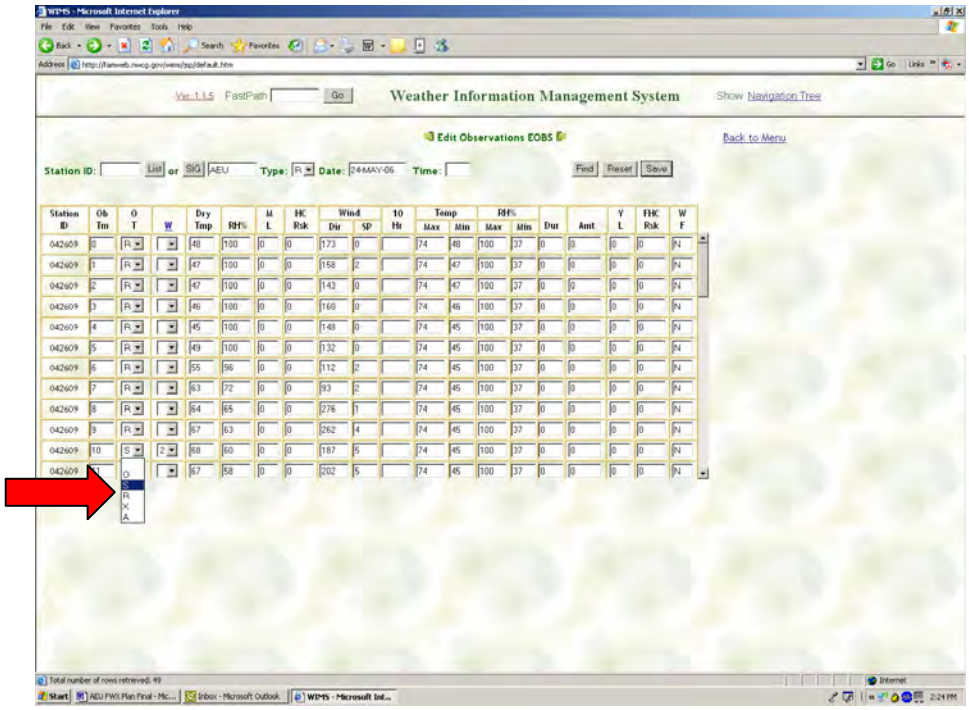
Step 9: Change the Type Field to "R" for Raw Data and then click the "FIND" button to bring all the observations for all three RAWS up.



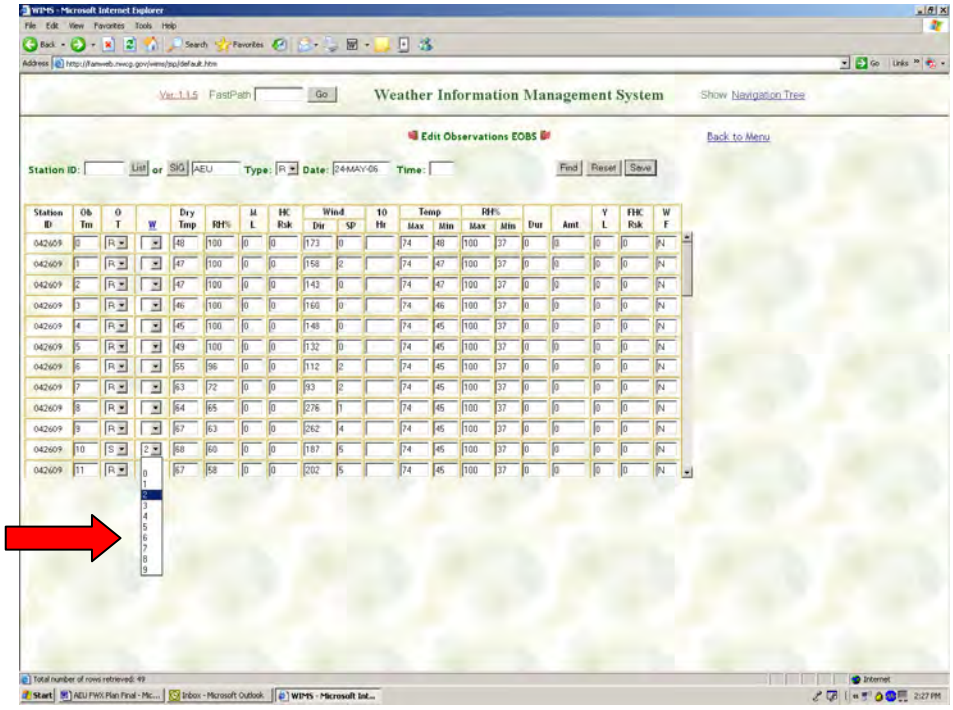
The screen below will appear with the daily observations for all three RAWS which can be scrolled through with the bar to the right of the observations.



Step 10: It's now time to make the necessary edits so WIMS can work for you. There are two types of observations; "S" for Special or "O" for Observation. The "S" observation will be used for making daily dispatch level calculations or determining the Adjective Rating for that time. The "O" observation will also be utilized for the Dispatch Level and Adjective Ratings however the "O" observation is saved in the system permanently for future NFDRS calculations. The "S" type observation can be done at any time and the "O" type observation is only done to the 1200 hrs. observation for each station.

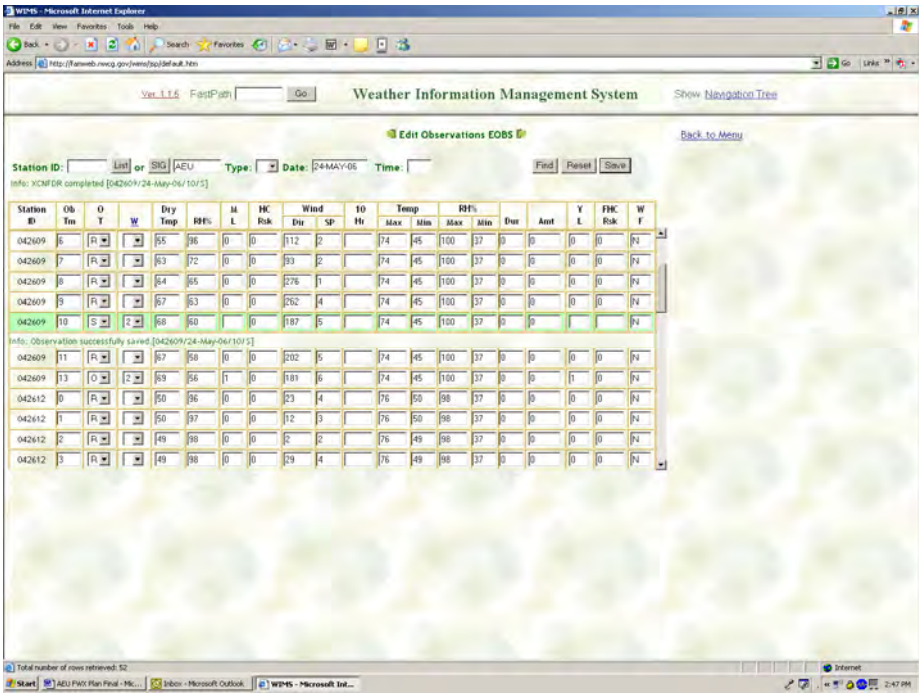


Edit the OT field reflect the required information. The image above shows a change to an "S" observation.

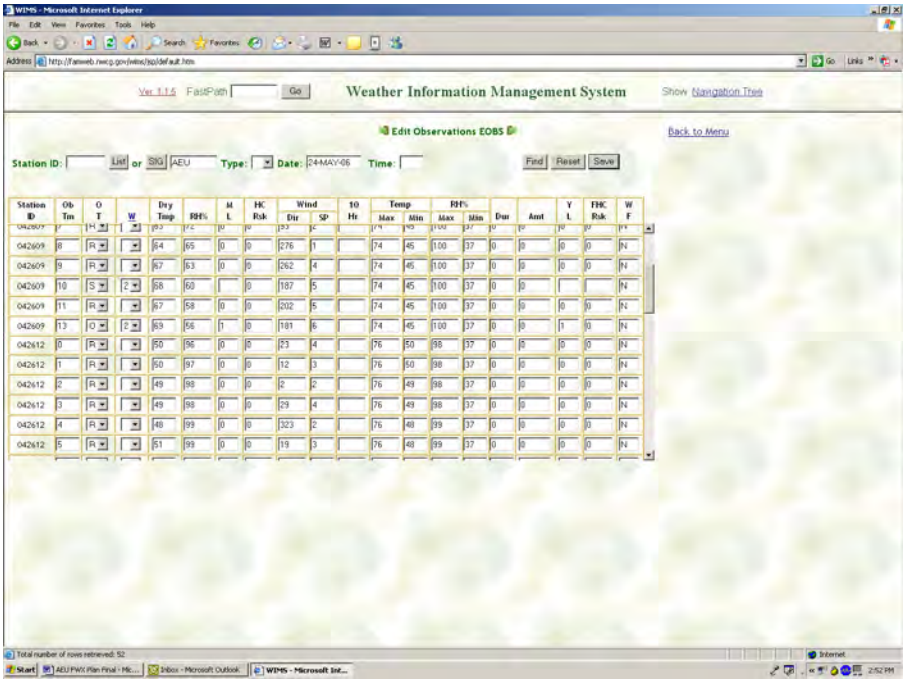


Edit the State of the Weather Field "W" to reflect the cloud cover and possible precipitation. There is a discussion of the State of the Weather codes at the end of these instructions for your review. Please review this information prior to selecting the State of the Weather.

After editing all three RAWS observations for the same time hit “SAVE”. After a save any accepted change will appear in green as shown below.



Scroll down to make sure all three were successfully saved. If not, go back and make the edits again and save again. Eventually it will take. To check and see if they did in fact take, change the Type field to blank and hit FIND again. All of the obs. should appear, regardless of type and will appear as shown below.

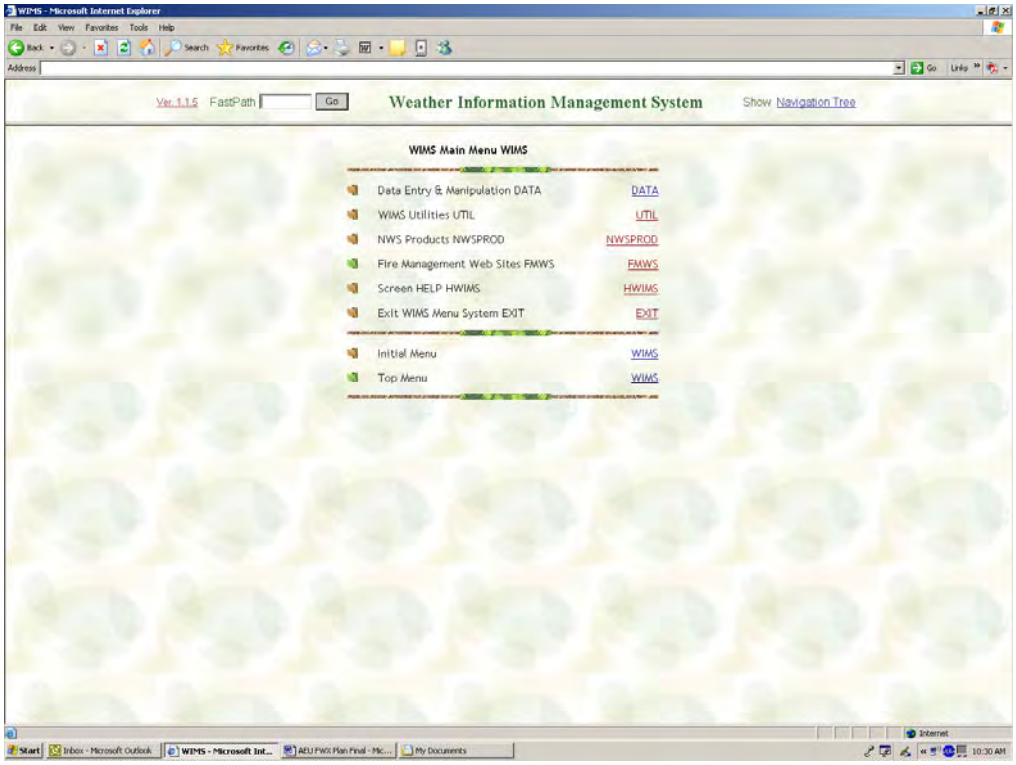


Step by Step WIMS Directions for the ECC, Retrieving Indices

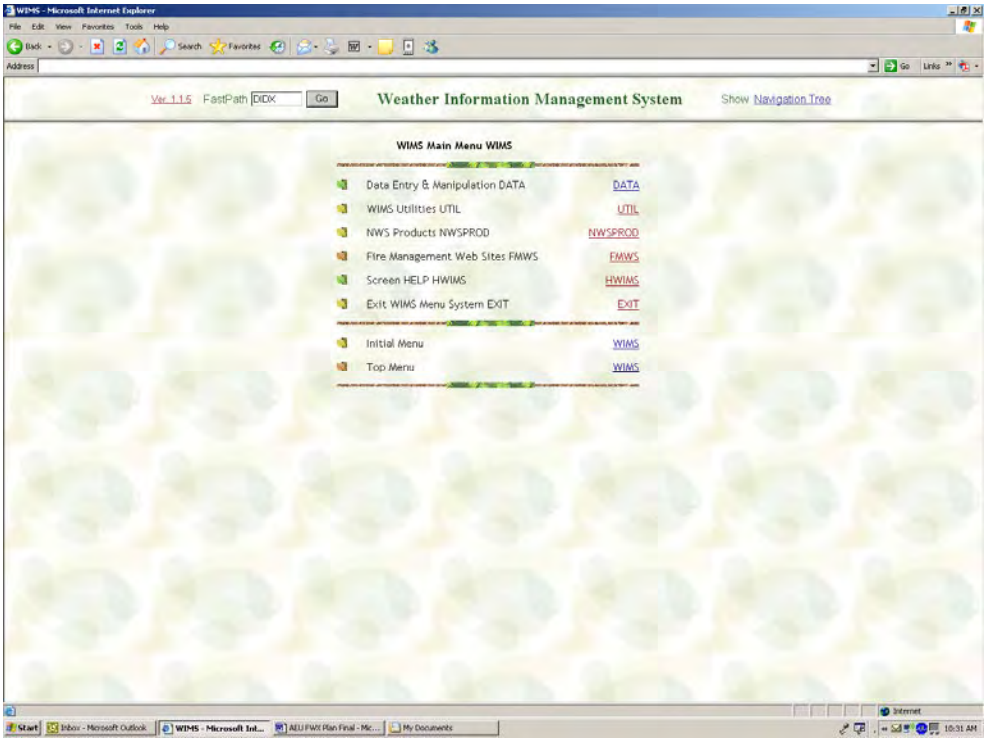
Remember, when retrieving NFDRS indices the observation must first be edited as described as above.

This action will require the user to log into WIMS in the same fashion as described above however the method to access the indices will be a little different. WIMS uses two different ways to execute commands; use the menus or use a FastPath command in the upper left hand corner of the WIMS screen. Please follow the steps below to access the indices and associated NFDRS Adjective Ratings.

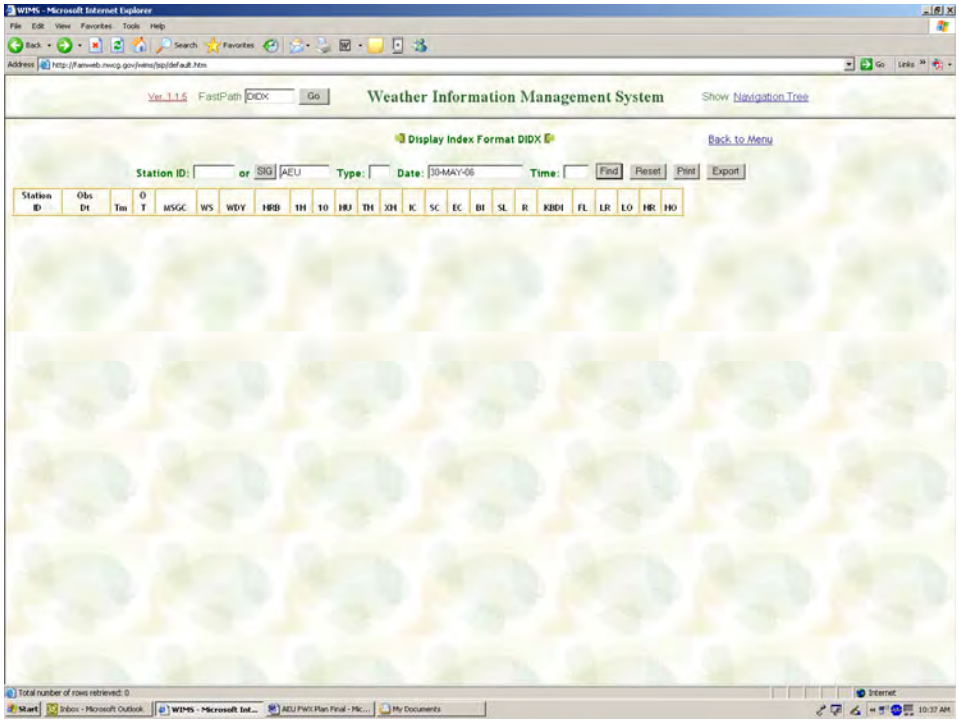
Step 1: Access the WIMS Main Menu Screen as shown below.



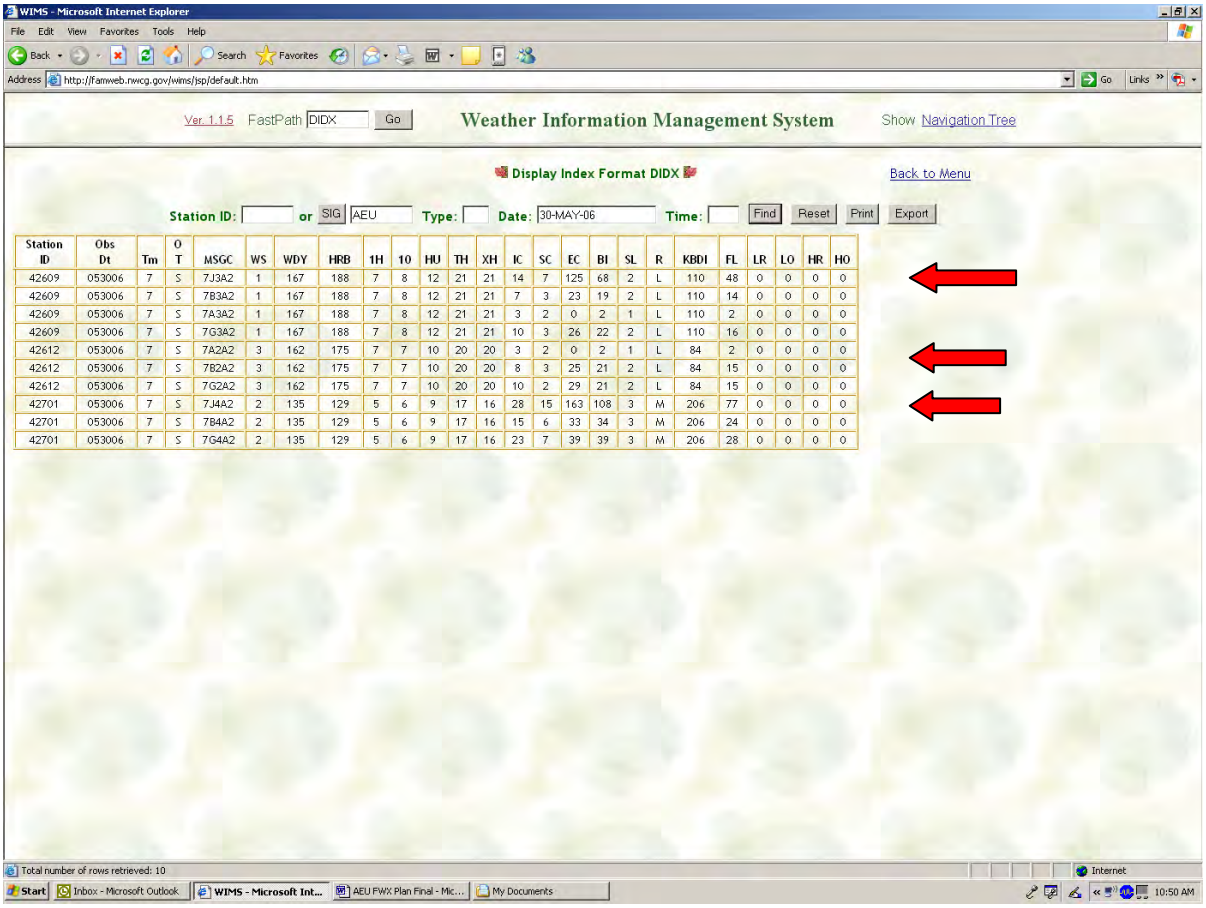
Step 2: Type “DIDX” in the FastPath box at the top left hand side of the screen and hit *Enter.*



Step 3: The screen below will come up which will require some information to access data. You can either enter a station number, or type "AEU" in the SIG box and hit *Enter* to have all three stations pulled up.



Note: When accessing indices from the "DIDX" FastPath you can also designate a specific observation time so there isn't so much information to scroll through. If you take a close look at the screen below you will notice a number of rows for each station number. WIMS makes calculations for every fuel model shown in the station catalogs. There are various fuel models for different purposes associated with each station. The only one that will be used for ECC purposes will be the one first shown for each station. See below.



Station ID	Obs Dt	Tm	O T	MSGC	WS	WDY	HRB	1H	10	HU	TH	XH	IC	SC	EC	BI	SL	R	KBDI	FL	LR	LO	HR	HO
42609	053006	7	S	7J3A2	1	167	188	7	8	12	21	21	14	7	125	68	2	L	110	48	0	0	0	0
42609	053006	7	S	7B3A2	1	167	188	7	8	12	21	21	7	3	23	19	2	L	110	14	0	0	0	0
42609	053006	7	S	7A3A2	1	167	188	7	8	12	21	21	3	2	0	2	1	L	110	2	0	0	0	0
42609	053006	7	S	7G3A2	1	167	188	7	8	12	21	21	10	3	26	22	2	L	110	16	0	0	0	0
42612	053006	7	S	7A2A2	3	162	175	7	7	10	20	20	3	2	0	2	1	L	84	2	0	0	0	0
42612	053006	7	S	7B2A2	3	162	175	7	7	10	20	20	8	3	25	21	2	L	84	15	0	0	0	0
42612	053006	7	S	7G2A2	3	162	175	7	7	10	20	20	10	2	29	21	2	L	84	15	0	0	0	0
42701	053006	7	S	7J4A2	2	135	129	5	6	9	17	16	28	15	163	108	3	M	206	77	0	0	0	0
42701	053006	7	S	7B4A2	2	135	129	5	6	9	17	16	15	6	33	34	3	M	206	24	0	0	0	0
42701	053006	7	S	7G4A2	2	135	129	5	6	9	17	16	23	7	39	39	3	M	206	28	0	0	0	0

Use the information from the first row for each RAWS and record the data on the daily *WIMS, RAWS, Dispatch, and Adjective Rating Data sheet*.

Appendix E

WIMS State of the Weather and Wet Flag Definitions

State of the Weather Codes for WIMS

Code	Associated State of Weather
0	Clear (less than 1/10 of the sky cloud covered.)
1	Scattered clouds (1/10 to 5/10 of sky cloud covered).
2	Broken clouds (6/10 to 9/10 of sky cloud covered).
3	Overcast (more that 9/10 of sky cloud covered).
4	Foggy
5	Drizzling (precipitation of numerous fine droplets, misting).
6	Raining
7	Snowing or sleeting
8	Showering (in sight of or occurring at station).
9	Thunderstorms in progress (lightning seen or thunder heard within 30 miles of observation site).

State of the Weather Codes 5, 6, & 7 Set Wet Flag to YES

State of the Weather Selection in WIMS

This section has been created to demystify the issue of State of the Weather selection in the WIMS system and the other issues that have to be considered as one selects one of the 10 State of the Weather codes. State of the Weather code selection is important for two reasons: to evaluate the effect of cloud cover on fire fuels and the level to which fuels have been wetted by precipitation. State of the Weather selection will assign the appropriate values in the NFDRS calculations to model the impact of cloud cover and associated moisture on fire fuels. State of the Weather is the condition that exists over the RAWS itself. This can vary between RAWS due to differing weather conditions over the Unit.

State of the Weather will have to be selected for each station each time a selected observation is to be utilized by the NFDRS calculations. This will be the normal afternoon “O” observation as well as the interval observations “S” that will be necessary to calculate the Adjective Ratings and the scheduled NFDRS indices, as well as dispatch levels. The selected State of the Weather code can cause wild swings in NFDRS indices if the incorrect code is selected. This is especially true with Codes 5, 6, & 7.

State of the Weather Codes 5, 6, & 7 will cause the Wet Flag setting to switch to "Yes" (the Wet Flag setting can be found at the far right side of the WIMS page where observations are edited). The Wet Flag setting of "Yes" or "No" refers to whether the fuels are so saturated with precipitation moisture to the level that a handful of the fuels will produce noticeable quantities of water when squeezed or swung. That's a lot of moisture. This is important because most NFDRS indices will automatically get driven to 0 when the Wet Flag is tripped to "Yes". During the winter months this isn't much of a problem, but during Fire Season this is a major problem because we are trying to model the NFDRS indices to accurately reflect fire danger. Driving the indices to zero during the Fire Season will cause wild swings within index values for the remainder of the fire season. Furthermore, it's almost impossible to accumulate enough rainfall during the fire season to cause wild swings in the actual fire danger and risk of ignition is only slightly reduced for a short period. Thunderstorm precipitation isn't adequate to change the overall fire danger picture. Minor day to day variations are normal however wild swings back and forth are not. Only what is described as a "Season Ending Event" would cause this.

So, between May 1st and the first MAJOR fall rains, don't use State of the Weather Codes 5, 6, & 7. Use one of the other codes that will reflect rainfall without tripping the Wet Flag to "Yes". The Unit Fire Weather Coordinator will make the determination when the season ends within the NFDRS models in WIMS.

One additional issue with respect to the Wet Flag needs to be clarified for the Zion RAWS. The issue revolves around the treatment of snow over fuels. As long as there is snow on the fuels the Wet Flag must be tripped manually. For example, the sun is shining bright however the fuels are covered in two inches of snow. The State of the Weather Code will be a 0 or 1, however the Wet Flag will need to be manually tripped to Yes to ensure the models know the fuels are covered in snow. This may sound trivial, however in late fall when early snows can be followed by dry spells, the unit needs to accurately model the fuels that are impacted by persistent snow.

In Summary:

1. State of the Weather is entered in WIMS to model the affect of cloud cover and precipitation over fire fuels.

2. State of the Weather must be entered for all observations used in NFDRS.

3. State of the Weather Codes 5, 6, & 7 are not to be used after May 1st.

4. Manually trip the Wet Flag to Yes if the fuels are covered in snow, if it does not trip automatically (5, 6, & 7).

5. State of the Weather represents conditions over or near the RAWS as described above in the Codes Description. Not over or near the ECC.

6. The Unit Fire Weather Coordinator will determine when the Fire Season ends in the WIMS NFDRS models. This relates to the use of the 5, 6, & 7 State of the Weather Codes.

Appendix F

Data Import Procedures for CAL FIRE Data into Fire Family Plus 3

N. Chris Waters, CAL FIRE AEU

March 22, 2007

One of the biggest hurdles for CAL FIRE folks trying to utilize NFDRS and the associated processors is acquiring data sets that are compatible with Fire Family Plus. Other agencies have made efforts to post fire occurrence data sets on the FAMWEB site and CAL FIRE is no exception. There may come a time however where CAL FIRE may not process the data as timely as necessary or you may need to convert the data yourself. The following pages will generally guide you through the process.

If this is the first time setting up Fire Family Plus: Before data can be imported into Fire Family Plus you must first set up Fire Family Plus to receive the data. This will require you to create Agencies, Regions, and Units under the main menu option "Data".

The following format is how the CAL FIRE data is typically imported into Fire Family Plus

Agency: CAL FIRE

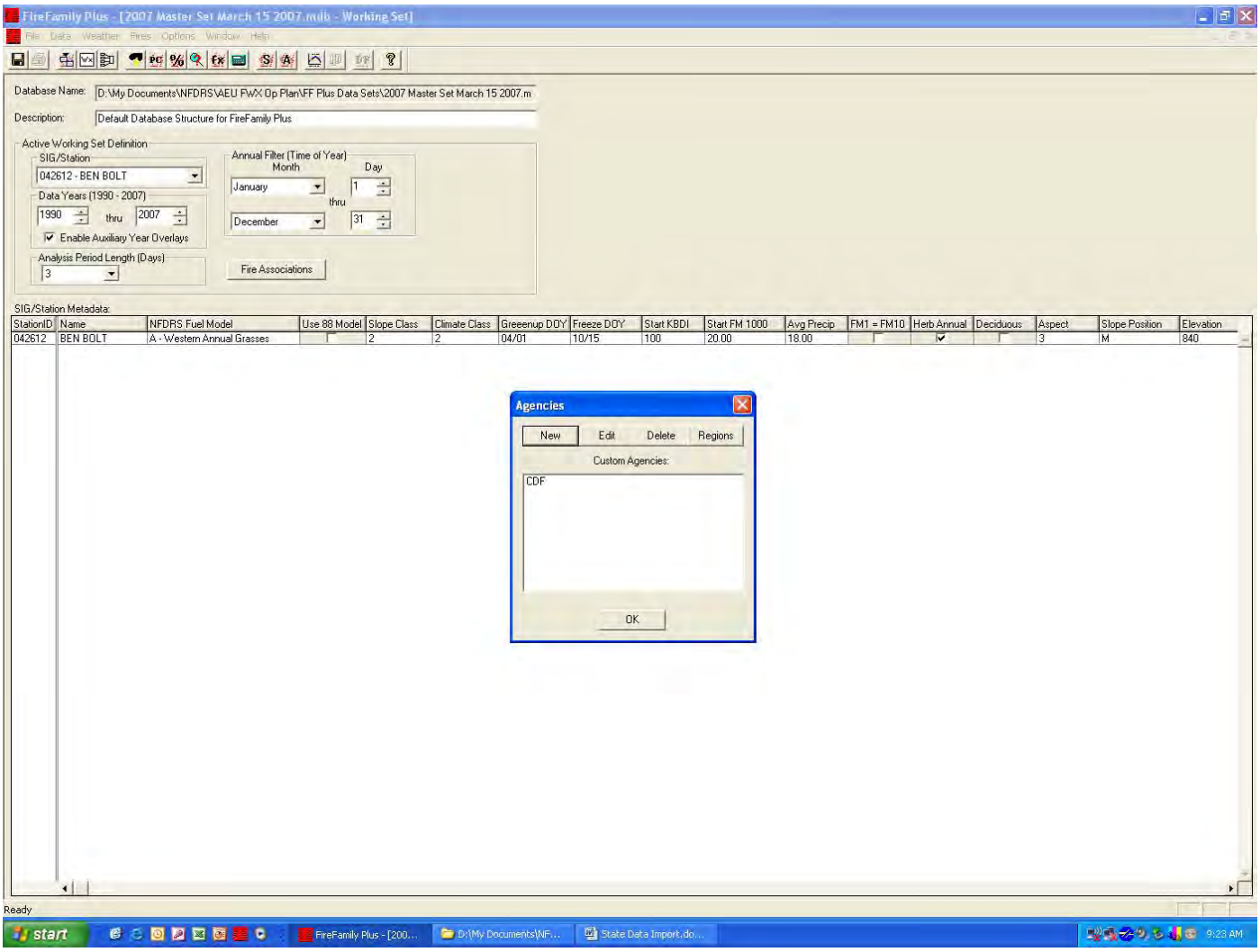
Region: 1	Units: HUU
	MEU
	CZU
	SCU
	LNU
	MRN
Region: 2	Units: SKU
	LMU
	SHU
	BTU
	TGU
	NEU
Region: 3	Units: MVU
	RRU
	BDU
	SLU
	LAC
	ORC
	VNC
	SBC
Region: 4	Units: AEU***
	TCU
	MMU
	FKU
	TUU
	KRN

The Regions will remain as the old four region format to manage data set size while importing to Fire Family Plus. Contract county fire occurrence data will be treated like any other unit for vegetation fires on SRA.

*** For purposes of NFDRS calculations, AEU will remain in Region 4.

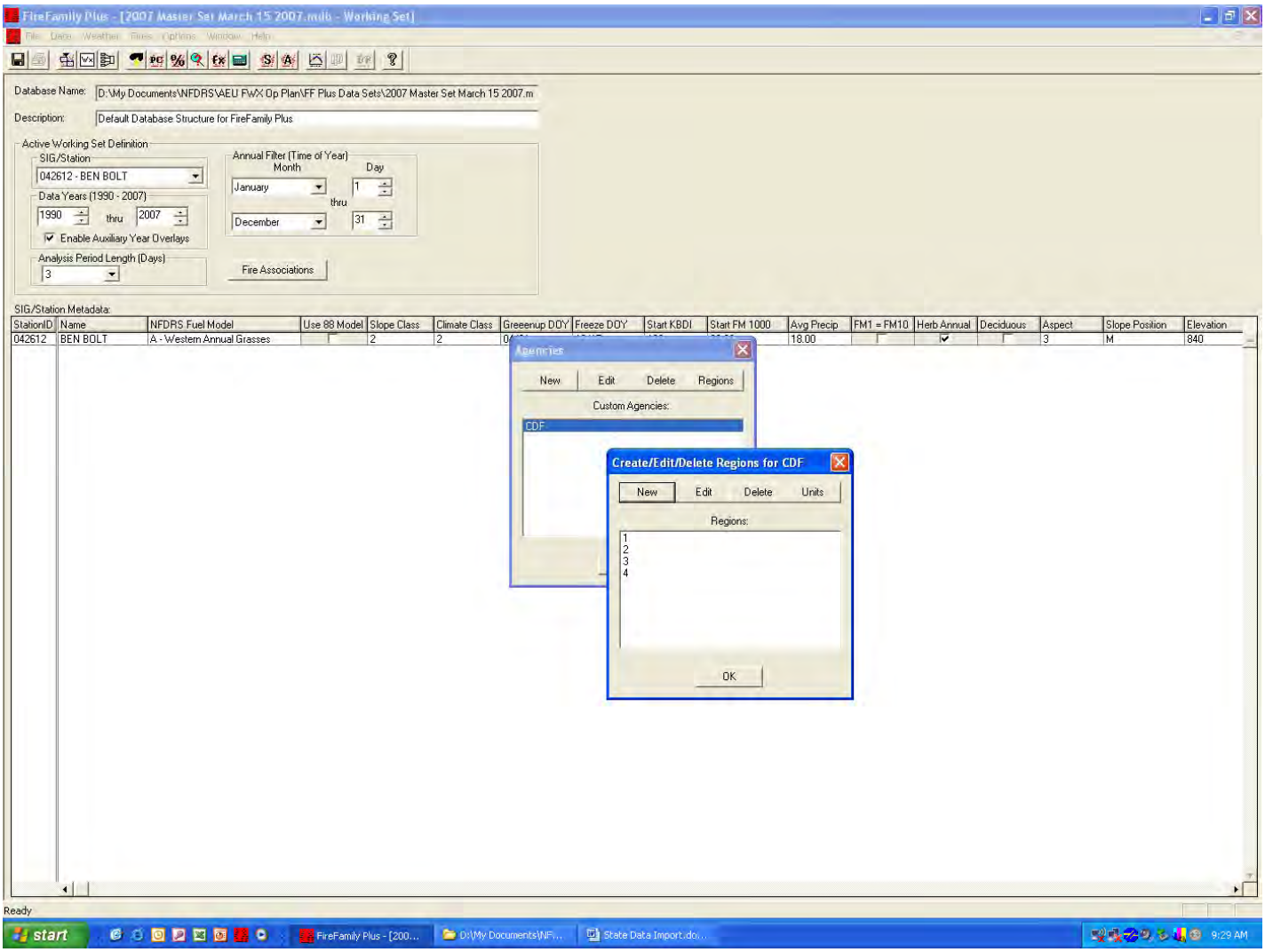
The first step is to check to see if CAL FIRE has been added to the working set summary selection menu. Select the following: **Data>Agencies**

The screen shown below will pop up and if CAL FIRE is there, then everything is OK. If not, Add CAL FIRE using the **New** button and add CAL FIRE.



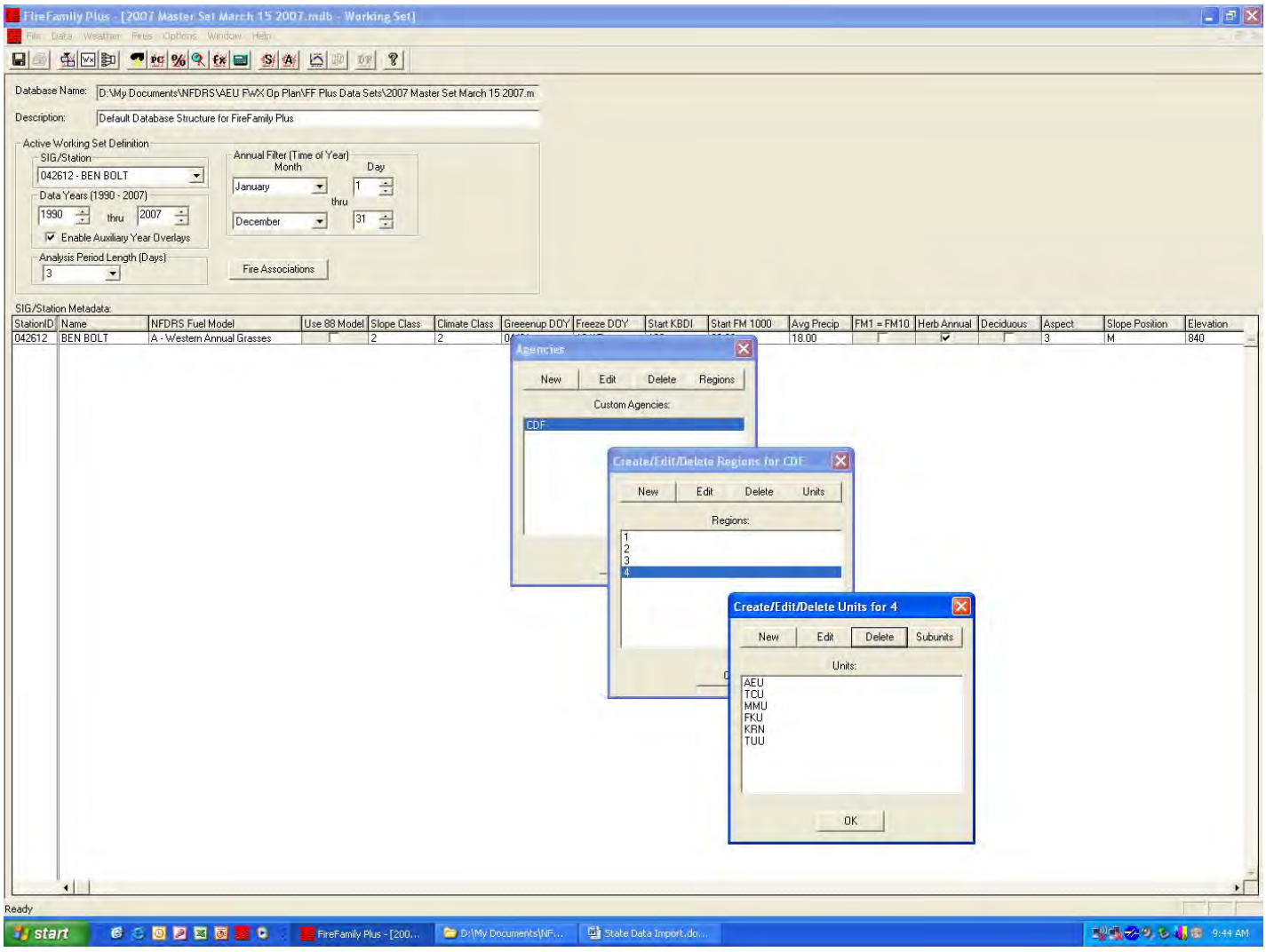
The next step is to make sure the Regions are in place. Select the following: **Data>Agencies, Highlight CAL FIRE>Regions**

The screen below will be visible. Regions are numbered 1 through 4 using single digits. If Regions are absent, add them using the **New** button and add each Region.



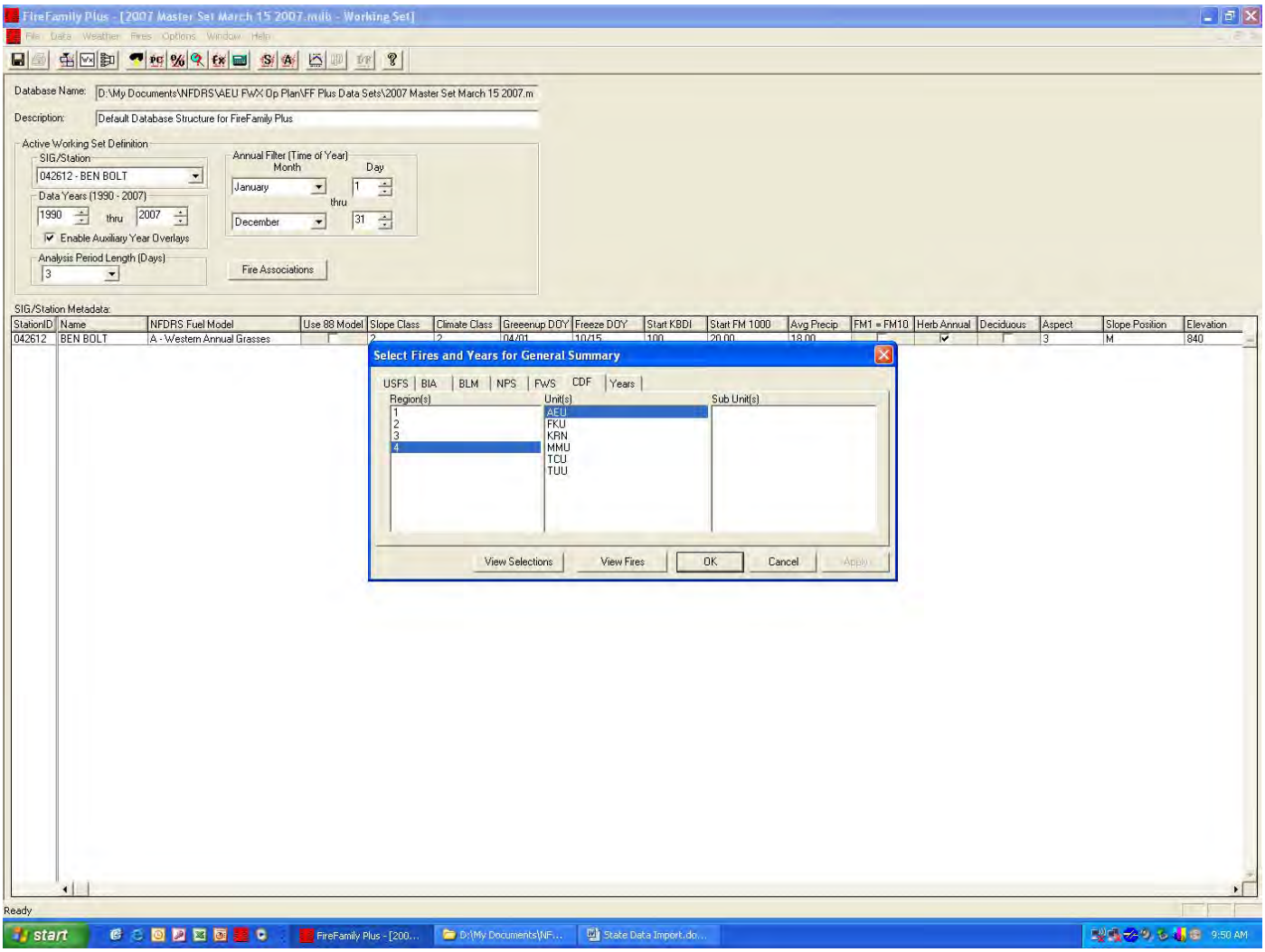
The last step is to add the Units to each Region. Select the following: **Data>Agencies, Highlight CAL FIRE>Regions, highlight the region>Units**

The screen below will be visible. Add the appropriate Units. AEU will remain in Region 4 as shown since all of the historical data was prepared in that fashion.



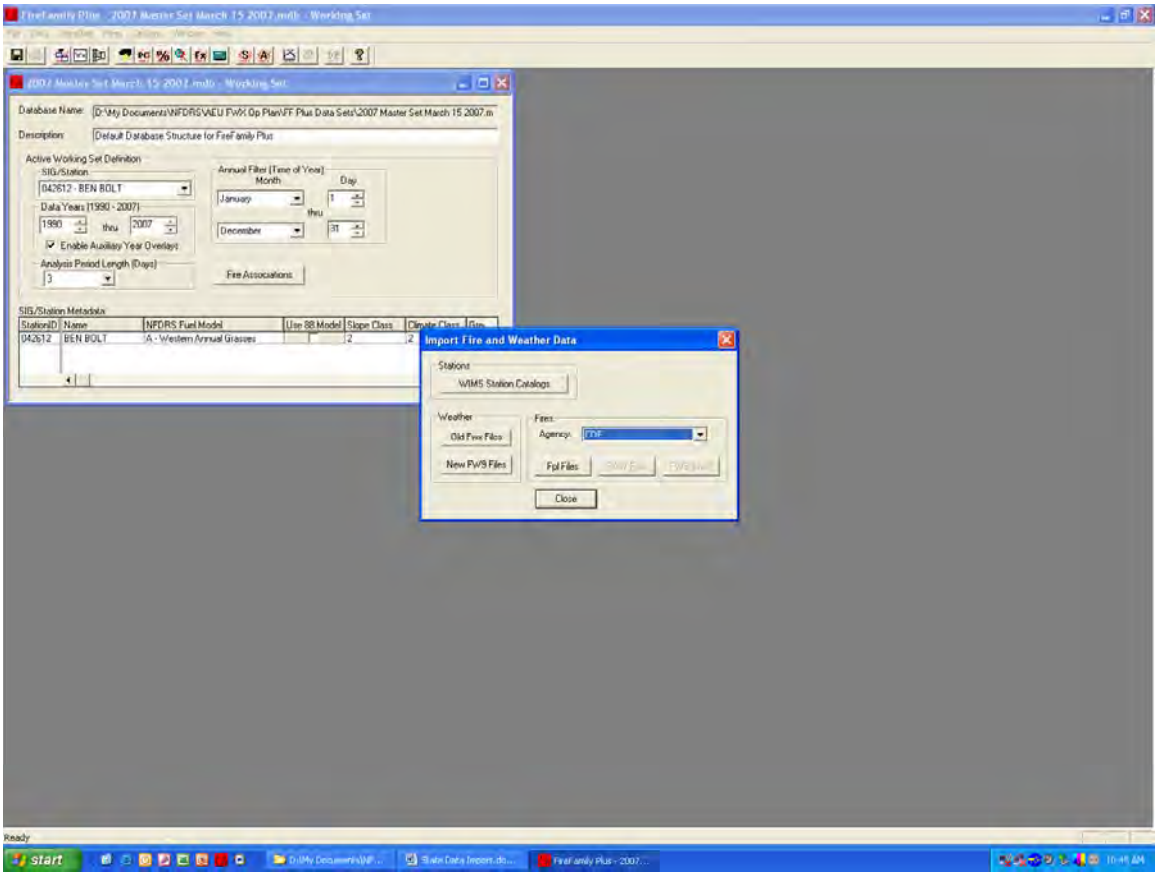
The last step before importing data will be to check the fire summary to see if the tabs have assigned properly. Select the following: **Fires>Summary>General**

The screen below will be visible. Notice the CAL FIRE tab and notice the Units that are shown when one of the regions gets highlighted. If the Units or Regions are not visible, go back and add them.



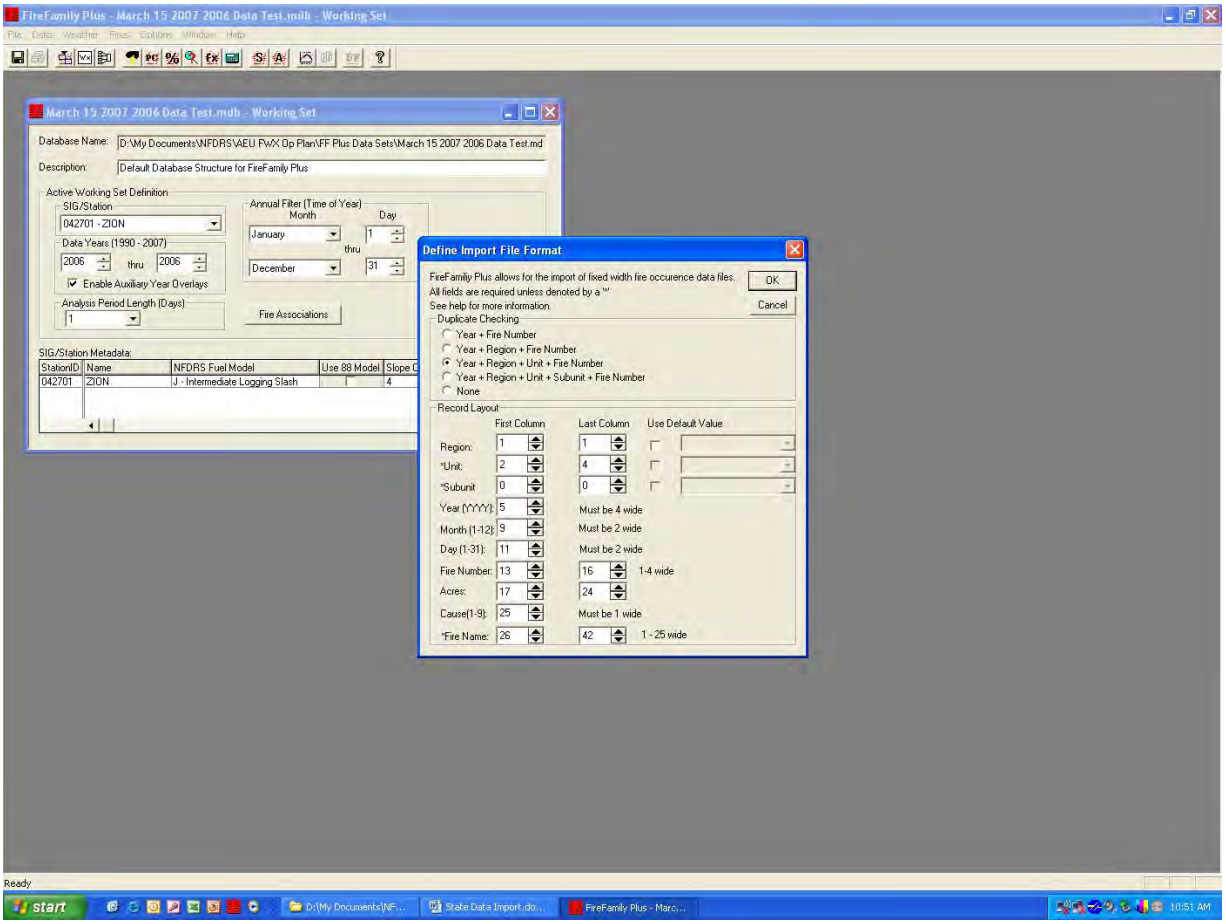
If Fire Family Plus has already been set up to receive data, you're ready to import the data: The State data up to 2005 can be found on the FAMWEB website under California. The data is broken into four pieces which are labeled for the specific Region they are from. Keep in mind the data for Region 4 is mislabeled; it's the fourth CAL FIRE data set down. Fire Family Plus will be looking for a file with an .fpl extension. Copy the data set from the FAMWEB site to your computer.

Import the data by Selecting the following: **Data>Import, select the Agency and click the Fpl Files Button.**



Fire Family Plus will give you a brow se menu so you can find the .fpl file. Select the file you want to load.

The next screen that will appear will be used to assign place holders for the data set. Make it look like the one shown below.



Hit OK!

The data set should load. After Fire Family Plus completes loading the data it will show a dialog box with the number of records loaded and any possible errors.

Fire Occurrence Data Conversion from CAL FIRE data set to a format that an be used in Fire Family Plus

One problem with fire occurrence data across all stat e agencies is the lack of standardization for fire cause codes. For data to be used in Fire Family Plus it needs to be converted to the Federal cause co de classes and then be formatted to the required data placement. The following instructions will guide you through the process of converting the cause code classes to the ones used in Fire Family Plus and how to take a standard spread sheet and convert it to an . fpl file that can be downloaded into Fire Family Plus.

The CAL FIRE fire occurrence data can be fo und on the Fire Plan web page or you can have the Unit Pre Fire Engineer pull it off for you. It will probably be in a .dbf format so you will need to open it up in Excel and sav e it as a spr ead sheet so it can be edited in Excel.

Seven pieces of information are required for Fire Family Plus in th e following column order; Region Number, Un it 3 Letter Identifier, Date (YYYYMMDD), Fire Number, Acres (to one decimal place), Fire Cause Code, Fire Name.

Region, Unit, Date, Fire Number, Acres, Fire Cause Code, Fire Name

Step 1: Arrange the colu mns in the order shown above, delete anything else tha t may come with the data set.

Step 2: Sort the data set by date, ascending.

Step 3: Convert the Cause Class Codes using Table #1.

Step 4: Make sure the a cres column is formatted to show figures to on e decimal place.

Step 5: Assign Fire Numbers, starting with 0001 and continue to the last fire for

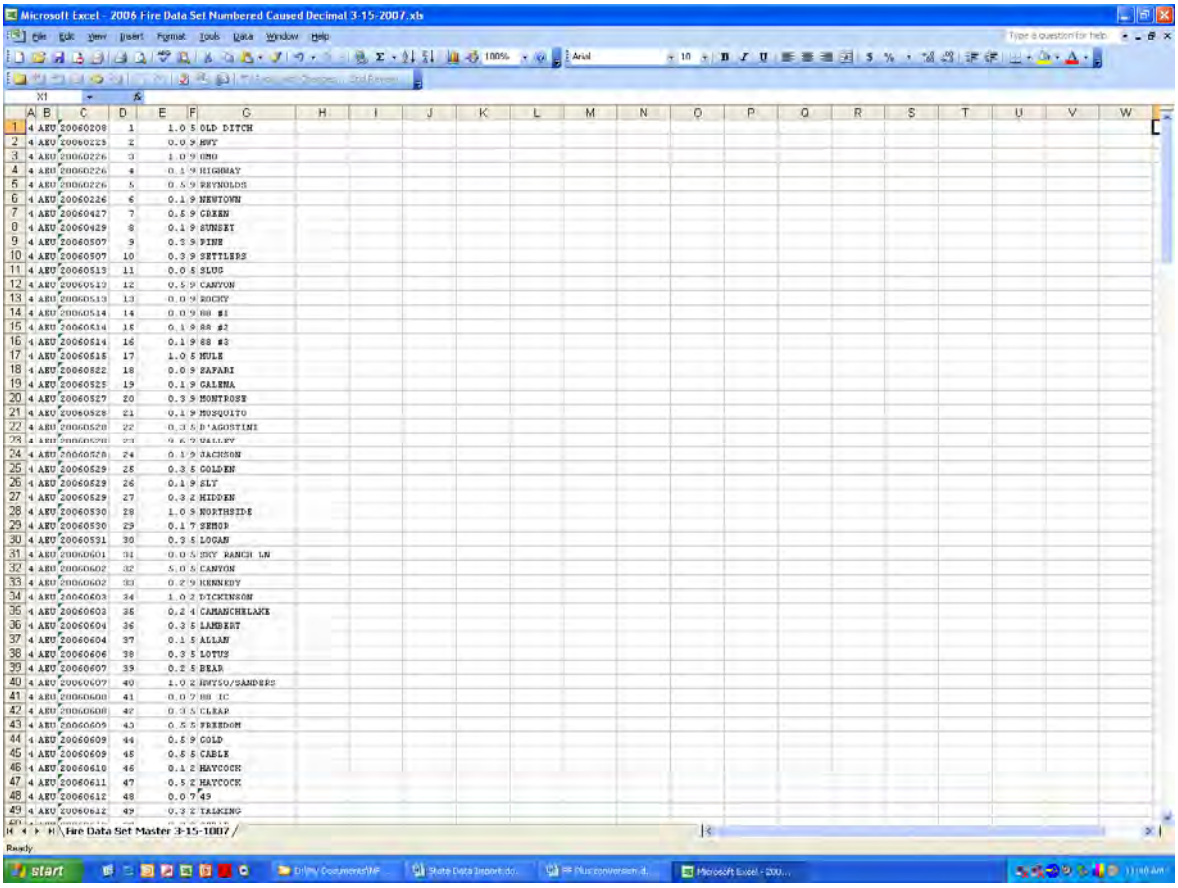
Step 6: Remove the titles.

Step 7: Change the font to “Courier New” font size 8.

Step 8: Format column **width** to the following:

Region: 1
Unit: 3
Date: 8
Fire Number: 4
Acres: 8
Cause Code: 1
Fire Name: 16

The spread sheet will look like this:



Step 9: Save the file as Formatted Text (space delimited) *.prn file extension.

Step 10: Change the extension from *prn. to *.fpl

Step 11: It's ready to load.

Table 1: Cause Code Converter CAL FIRE to Federal/Fire Family Plus

Cause code converter		
CAL FIRE Cause_Code	**Cause Description**	**Fed Cause Code**
0	Unknown	9
1	Undetermined	9
2	Lightning	1
3	Campfire	4
4	Smoking	3
5	Debris Burning	5
6	Arson	7
7	Equipment Use	2
8	Playing / Fire	8
9	Misc	9
10	Vehicle	2
11	Railroad	6
12	Powerline	9

Amador-El Dorado-Sacramento-Alpine Unit
2011 Lightning and Complex Incident Plan

Background

The Amador El Dorado Unit Lightning, and Complex Incident Plan, has been created to guide Unit operations, and support personnel, during lightening, and other complex incidents. Lightning events are an example of an incident that can become especially overwhelming for the Unit and the Emergency Command Center (ECC). Lightening complexes can tax the daily ECC operations as the complexity of the event increases. The intent of this plan is to establish, and maintain, a seamless flow of resource dispatching, ordering and accountability. Preparation of this plan was originally prepared with the intent of managing lightning incidents; however it is recognized that it can be activated for any incident that presents similar demands on the Unit and ECC. This plan is designed as an outgrowth of the Incident Command System (ICS) using the standard organizational elements to cover geographic areas that are impacted by lightning or any other emergency incident that exceeds the operational control of the Unit ECC.

Activation

Stage I Prediction,

Lightning event, or other incident, has been predicted via National Weather Service Warning.

Stage II Activation,

Lightning down strikes, or other incidents, have been observed and/or lightning fires have been reported.

ECC Operations

Stage I Prediction

☐ ECC notifies Duty Chief, Unit Personnel, Cooperators, and adjacent Units that the Plan is to be activated.

☐ Initiate authorization of staffing pattern with Duty Chief.

☐ Utilize additional personnel for *Stage I* as per Duty Chief.

☐ Assign IC, establish ICP within the ECC, open Expanded Dispatch if necessary.

☐ Explore opportunities to staff lookouts for detection support, activate lookouts (fire only).

☐ Status available aircraft for detection (fire only).

☐ IC to assign Branch Director within each Lightening Control Areas (LCAs) per the incident demand. LCAs will be designated North Branch, South Branch.

☐ Consider the need for Logistics Section, FLO, and FEM.

☐ Modify the IA Dispatch from full response to a level that considers incident complexity/demand.

Stage II Activation

☐ ECC notifies Duty Chief, Unit Personnel, Cooperators, and adjacent Units that the Plan has entered *Stage II.*

☐ Utilize available staff for additional overhead in affected LCAs. i.e.Pre-Fire, VMP, Prevention, or Area Forester. Staff available utilities and make ready for assignment.

☐ Establish Planning Section with a minimum of Situation and Resource Units at the ICP.

☐ Assign detection and suppression aircraft or coordinate with National Forest or adjacent units to share aviation resources.

☐ Initiate ICS structure for detection and management of incident activity in each Branch.

☐ Assign detection and operational resources to Branches based on IC priorities.

☐ IC will work from the Lightning ICP and from within the ECC.

All lightning fire detection and suppression activity will communicate through the EEC maintaining consistent operations.

Field Operations

ECC and IC will be responsible for tracking re sources assigned to each LCA. It is the responsibility for the IC to reconcile res ource status with eac h LCA at regular intervals to ensure appropriate Plan resource status.

Each LCA will have res ponsibility for the detection and reporting to the ECC of fires that occur as a result of lightning activity, or are found inc identally by detection operations. The IC will create what ever ICS structur e necessary to manage span of control and complexity. The Branch will hav e control of all resources assigned to the LCA and wil l allocate those resources as needed to manage incident activity.

The ECC will dispatc h, request, assign, and status all re sources needed for operations related to the complex.

The ECC will utilize an alpha numeric system to name and track all inc idents that occur within an assigned LCA.

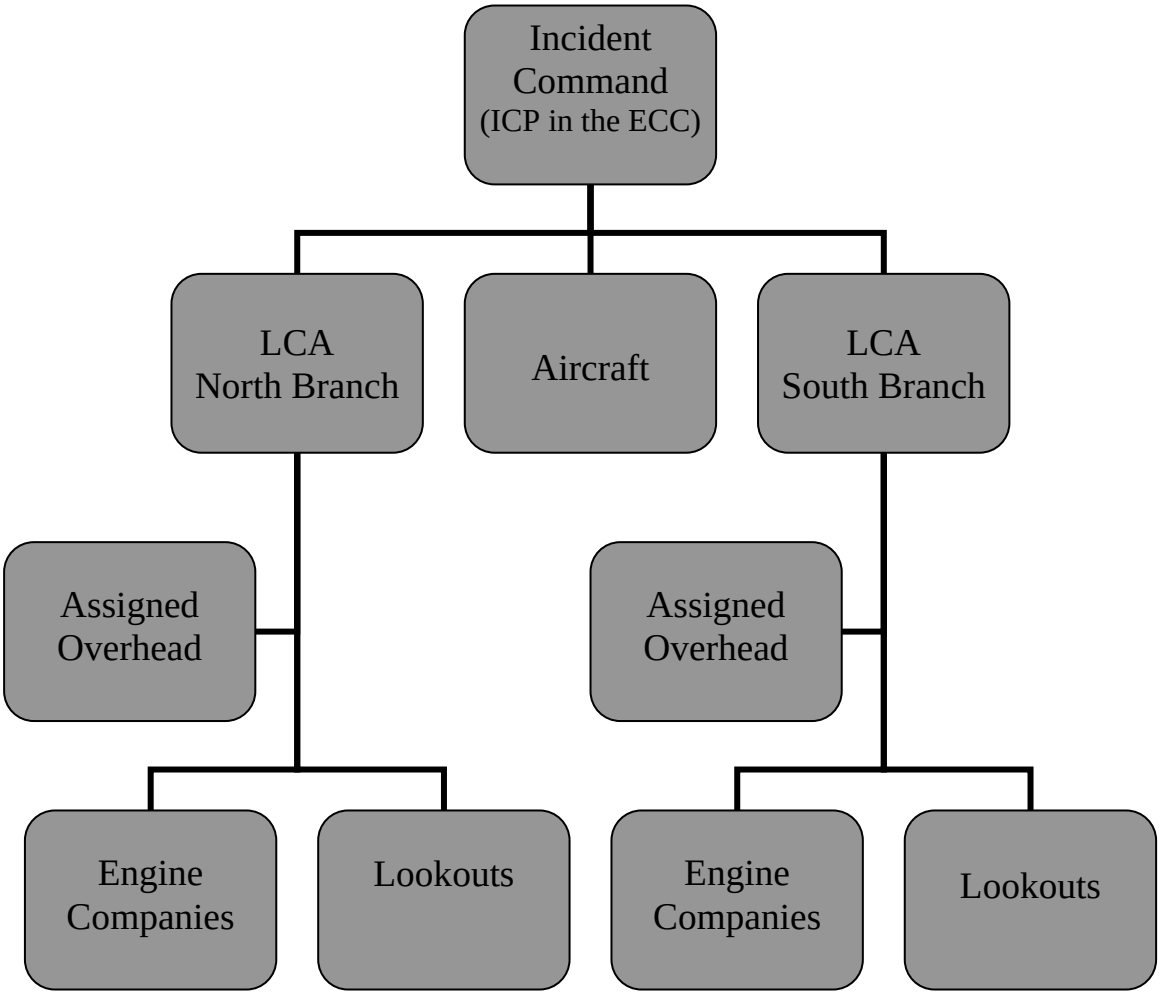
Possible Format: "Battalion" – "Number"; i.e.: Battalion 1- Lightning 1, Battalion 3- Lightning 2, Battalion 4- Lightening 3 etc.

Branch will notify the IC of any new incident with Legal Location, Lat Long, Geographic Description, and Size.

ECC will be responsible for the mapping and tracking all incidents within each LCA.

ECC will assign Tactical Frequencies and Command Frequencie s will be assigned on request.

All operations resulting from the implementation of this plan will utiliz e the origin al Incident Number that was used to activate the plan.

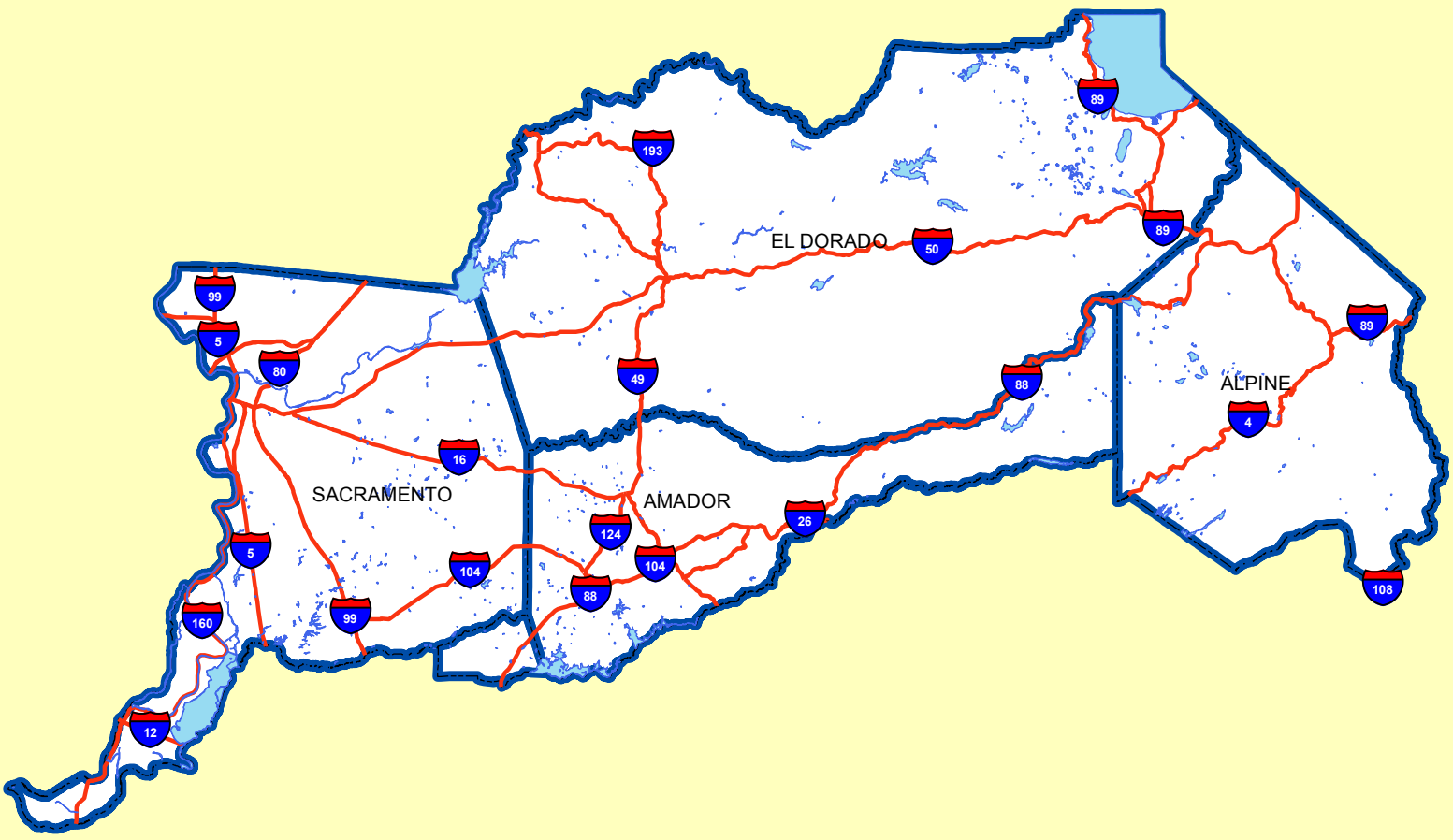


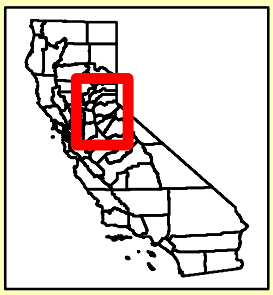
EXHIBITS: MAPS

Figure A: Unit Map

Figure B: Battalion Maps

Amador-El Dorado-Sacramento-Alpine Unit
2840 Mount Danaher Road
Camino, CA 95709



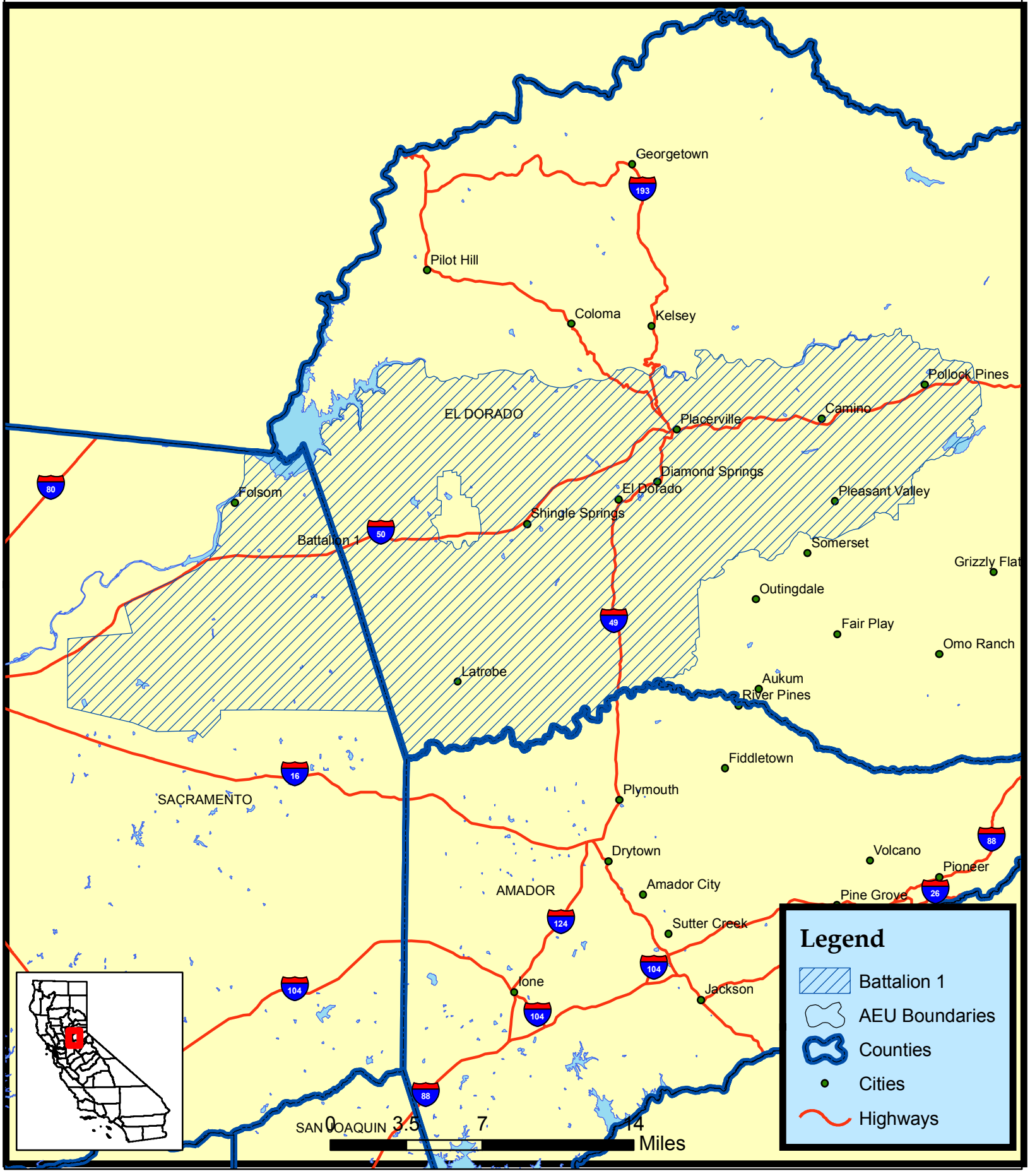


0 10 20 40 Miles

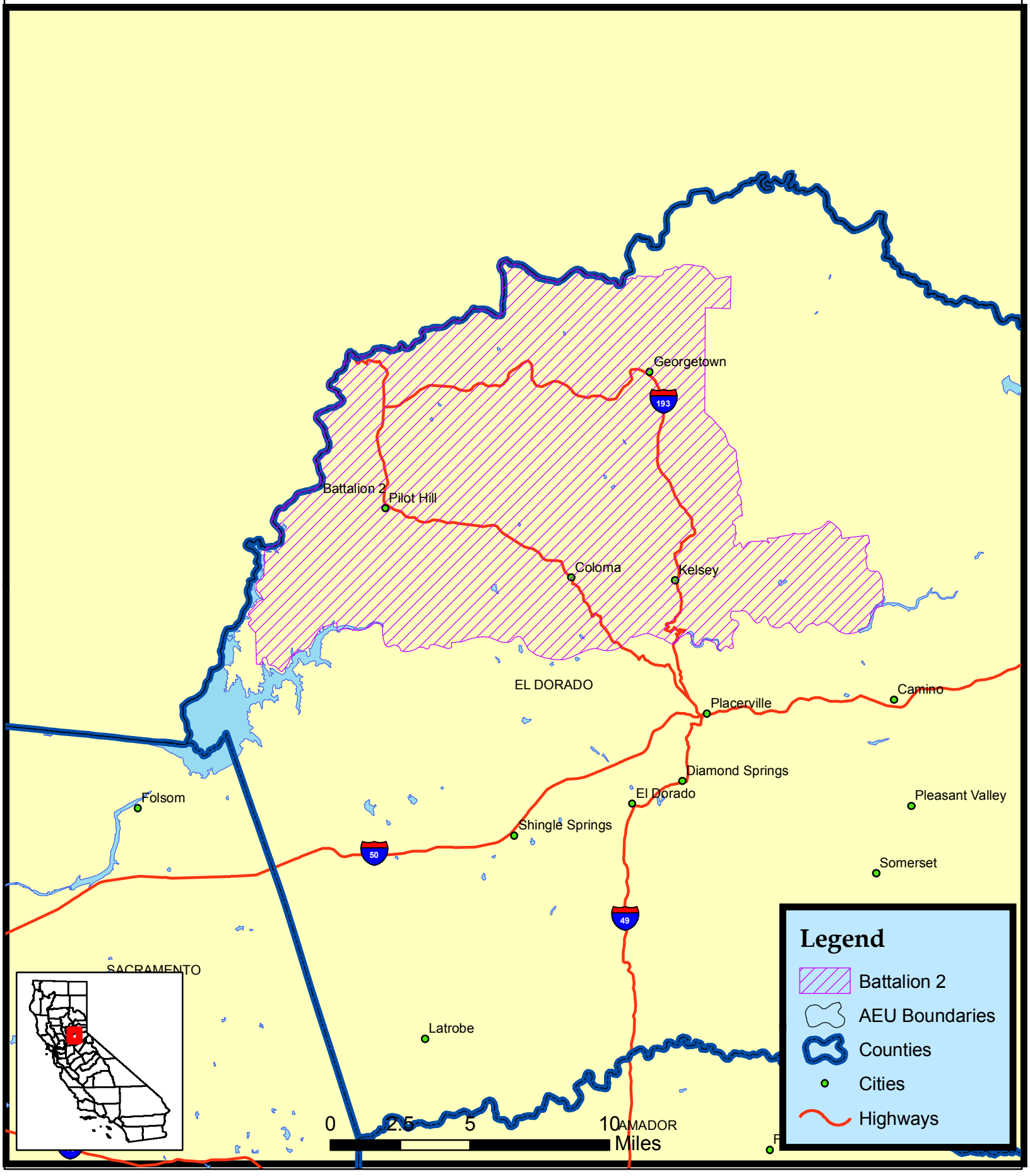
Legend

- AEU Boundaries
- Counties
- Highways

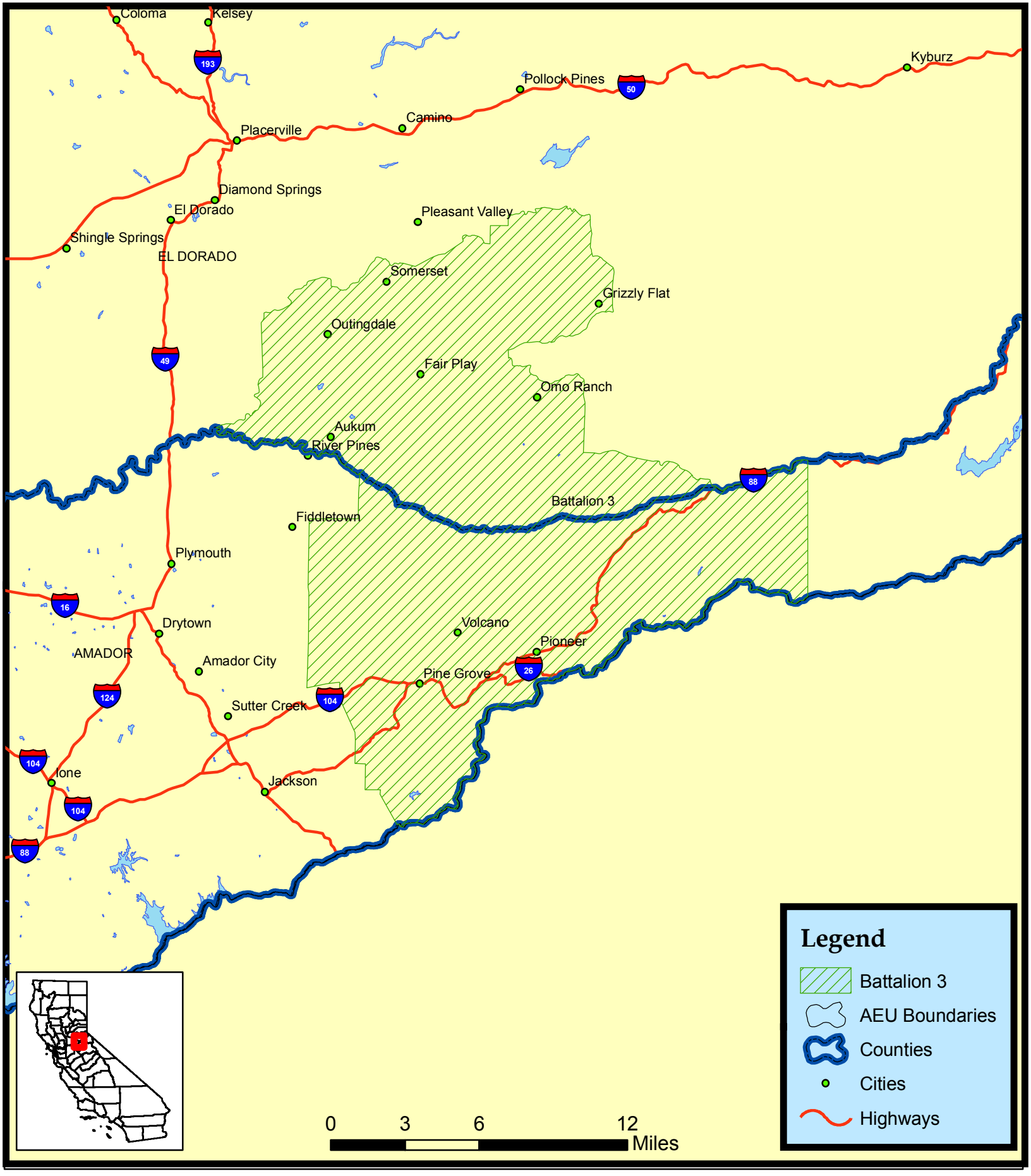
Amador-El Dorado-Sacramento-Alpine Unit
Battalion 1



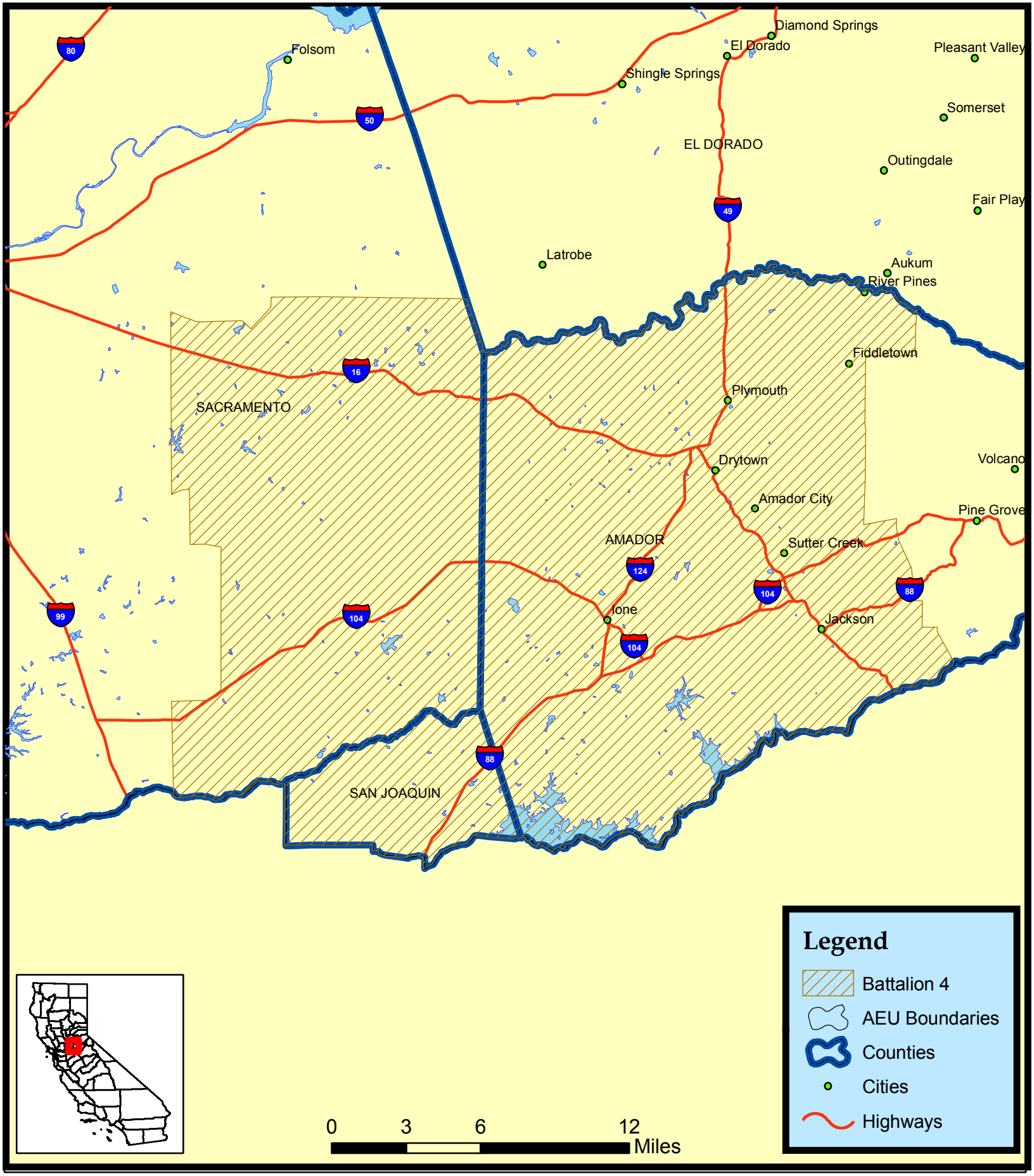
Amador-El Dorado-Sacramento-Alpine Unit
Battalion 2



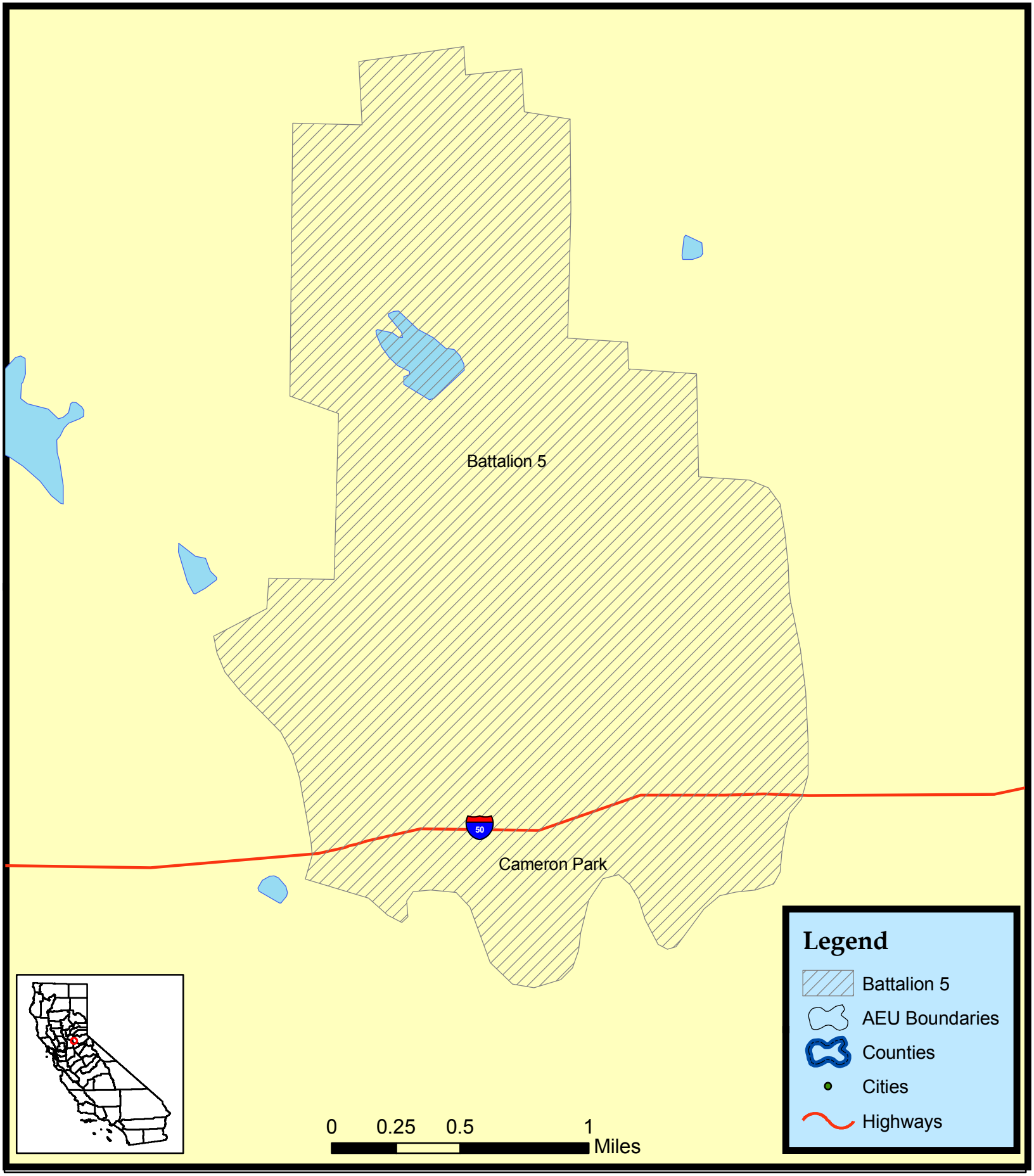
Amador-El Dorado-Sacramento-Alpine Unit
Battalion 3



Amador-El Dorado-Sacramento-Alpine Unit
Battalion 4



Amador-El Dorado-Sacramento-Alpine Unit
Battalion 5



Amador-El Dorado-Sacramento-Alpine Unit Battalion